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Factory Report

We congratulate Mr. H. E. Chasteney, the Chief Inspector of Factories, on his first report. This is for the year 1945, but we hope that in future there will be a reduction in the time lag between the period under review and the publication of the Report. In pre-war days, it was possible to obtain the Report in August. Whilst the document itself is well presented, some of the ancillary reports would be improved by drastic sub-editing. When Sir William Garrett was responsible for this annual publication, it was often possible to forecast future legislation, but this year we see no such indications. The total number of accidents is of the same order as in pre-war days. In 1936 there were 11,123, of which 38 were fatal; in 1937 the figures read 12,819 and 40. The Report under review records 11,947, with 36 fatalities. Of these, two were boys and one a woman. In analysing these statistics, however, one should take into consideration, as is pointed out by Mr. Chasteney, the level of employment and drastic movements. Unquestionably, a static personnel will be less prone to accidents than one swelled by a host of newcomers. This, no doubt, accounts for the fact that the number of fatal accidents reported—1,646—is the lowest for the last 10 years. An important section of the newcomers to industry is that of the boy entrant, and all too many accidents arise from " skylarking " during meal breaks. Foremen must extend their supervision to these periods, as factories of all kinds are dangerous playgrounds. Extended reference is made in the Report to " slum " or " backyard " factories. It seems the Inspectorate is deferring application to the Courts for a closing order because of existing difficulties in effecting repairs. The remedy suggested is the creation of " flat " factories.

There is a suggestion that many factories could do with a spring-clean, and a case is reported of one firm which stopped production for 10 days and put all the work-people on cleaning and tidying. " Ninety-three tons of dirt, waste and rubbish were removed." This drastic action at least overcomes the twin excuses of " can't afford the men " or " too busy " to keep the shop tidy. We cannot urge too strongly that—based on the personal observation of hundreds of industrial concerns—the order of prosperity of any firm varies directly with the level of tidiness of its shops and yards.

Dr. Merewether, in his Report on Industrial Health, says that he estimates that in the 3½ years between 1930 and 1933, 5.4 per cent. of a population of sandblasters, amounting to 441, died from silicosis or silicosis with pneumonia, and that their average length of employment in the occupation was under a dozen years. The deaths of sandblasters in the years from 1940 to 1945 were 13, 4, 4, 6, 7 and 6. Thus a worthwhile achievement has been accomplished throughout the last two decades. Fettlers in the steel casting industry are now being reported as having virtually the same mortality rate, but, of course, there are many more fettlers than shotblasters. The author of this section apparently gives credence to the notion that the inhalation of aluminium powder and alumina by those in contact with siliceous dust is a preventative against silicosis, but he rightly emphasises that the suppression of dust at its source is of first importance. The main theme of both this and the major Report is that the adoption by industry as a whole of a " really high level of good house-keeping " would so reduce common ailments as to give a better order of resistance to the more serious illnesses. That at least is our interpretation.

(*Continued on next page.*)

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BOOK REVIEW

End Wages Conflict, by H. Grant McGregor. Published by Williams, Lea & Company, Limited, Worship Street, London, E.C.2. Price 9d.

Mr. McGregor writes well on a subject which has been only too prominent during the last few weeks. To our mind the great query is in the author's argument based on the increase of wages immediately there are signs of a depression in order automatically to increase consumption. According to his own statement, a national increase of 10 per cent. in wages would absorb all profit; thus, in practice, increases are passed on to the consumer. Thus if Blogg's find a slump in the consumption of their biscuits, they, in conjunction with the other biscuit makers, increase wages, then one of two things can happen—(1) the public would be able to afford to buy more biscuits, or (2) at an enhanced price they would still remain unsold. A perusal of this interesting pamphlet will enable readers to draw their own conclusions.

HOUSE ORGAN

Bulletin of the Council of Ironfoundry Associations (for private circulation only).

The January issue opens with an explanatory article on filling up the Iron and Steel questionnaire. Then there are some particularly useful notes on the call up of youths for service with the forces and the retention of Prisoner of War labour. There are notes on the obtaining of finances by foundries for extensions and the release of a fresh industrial film—"Plan for a Foundry."

This film, made by the Ford Motor Company, is now available for short term borrowing. It lasts 20 minutes and requires a "sound" projector.

Another important note relates to the issue of copper faced plates, setting out the standardised conditions of sale of iron castings. Finally there is a short article on Packed Meal Service, which, by permission, is being reprinted as being of especial interest to smaller foundry concerns, not necessarily making iron castings.

Factory Report

(*Continued from page* 97.)

We have on previous occasions referred to the impact of the Factory Acts on the industries of certain foreign countries. Before the war, we reported cases of flagrant breaches of the law. Now proof is forthcoming. This Report cites 80 cases of carbon bisulphide in one rayon factory in a liberated country, whereas there have only been three cases in the last six years in this country. Again, British teams visiting German foundries have reported adversely on the sandblasting conditions in vogue in the Ruhr. Whilst there is so much international hobnobbing going on, it would surely be an opportune moment to have an international code of factory conduct implemented, and to have an international army of inspectors to see that it is carried out.

GERMAN TECHNICAL REPORTS

Several reports of interest to the foundry industry have been made available by the British Intelligence Objectives Sub-committee and the Field Information Agency, Technical. These reports (a list of which appears below) may be obtained from H.M. Stationery Office, York House, Kingsway, London, W.C.2.

B.I.O.S. 860—Iron powder. Notes on German production methods at Düsseldorfer Eisenhuetten (price 2s. 1d., post free); B.I.O.S. 908—Manufacture of Products from powdered metals (2s. 1d.); F.I.A.T. 524—Production of aluminium (4s. 8d.); F.I.A.T. 881—Contribution to the production of cast-nickel anodes (2s. 1d.).

NEW CATALOGUE

Foundry Equipment.—The Incandescent Heat Company, Limited, of Cornwall Road, Smethwick, Birmingham, have sent us two catalogues, issued by the Whiting Corporation, of Harvey, Illinois. For some time now the former concern has been the representative in Great Britain for the American firm. This means that the Incandescent Heat Company undertake the manufacture and selling of Whiting designs. The first catalogue covers very completely the subject of ladles. Though the types of ladles used by the foundry industry are very numerous, it would be difficult to find one not included. There is everything from hand shanks to bottom-pouring ladles, whilst the subject is amplified by illustrating and describing reservoir ladles.

The second catalogue treats of a multitude of plants not entirely for the foundry industry, for 'bus washing is included. There is illustrated and described a wide range of melting plants—cupolas, rotary, side-blown converters, air furnaces and charging machines. Both these catalogues carry with them the impression that the plant illustrated is of good design, rugged, yet well finished. They are available to our readers on writing to Smethwick.

F.T.J. READERS SERVICE

It is of interest to record that, on an average, the FOUNDRY TRADE JOURNAL deals with some 1,200 enquiries each year. The queries received cover every aspect of the foundry industry imaginable, and in some cases have been completely outside the province of the industry. During January, the JOURNAL answered enquiries from all parts of the world, including such countries as France, Sweden, the United States of America, Belgium, India and Roumania.

MR. V. C. FAULKNER

Mr. V. C. Faulkner, Editor of the FOUNDRY TRADE JOURNAL, has been nominated as vice-president of the Comité International des Associations Techniques de Fonderie, of which he was a founder in 1926, when president of the Institute of British Foundrymen.

MALLEABLE CAST IRON*

By H. G. HALL, F.I.M.†

(*Continued from page* 79.)

Cooling Through the Critical Range

Here again, where thin sections and low carbons are concerned, the rate is immaterial. With regard to thick section high carbon material, the position is somewhat obscure and needs further attention. If temper carbon nodules be present, it seems immaterial if the cooling through the range be slow or fast; if temper carbon nodules are relatively scarce or even absent, then cooling should be as slow as possible to below 680 deg. C. Morrogh[2] has shown illustrations of coarse and fine pearlite areas in irons containing iron sulphide, and remarked on the poor properties associated with such structures. It is interesting to note that the complete absence of ferrite lakes around the spheroidal type of nodules and to speculate as to the reason. It is obviously more difficult to deposit carbon on to nodules of such small surface area than on to those of the aggregate type.

Gas Annealing

Perhaps these remarks on iron ore annealing will reveal the inefficiency of the process; apart from the labour involved, the tonnage of materials handled, it is evident that the oxygen contained in the ore diminishes at the very stage when an adequate supply of decarburising gas is essential. It should also be borne in mind that the main gaseous reactions are reversible, and that if the oxygen supply ceases at too early a stage, with a consequent production of a high carbon monoxide content, then there is a risk that re-carburisation may occur and a thin layer of carbides becomes intermingled with oxide at the surface.

The gaseous atmospheres introduced into the modern type ovens are not, of course, limited to CO_2, CO mixtures, but are many and varied. Baukloh and Faroud[14] have published some interesting details of decarburising in hydrogen and mixtures of hydrogen and water vapour, Jenkins and Williams[15] in partially burnt town's gas, and Robiette[16] in various gas mixtures. They all appear to agree that the rate of decarburisation is governed by the rate of carbon diffusion. Samples of white iron observed recently decarburised to an extent undreamed of a few years ago, throw, however, a doubt on the latter statement.

Combinations of gas atmosphere which inhibit graphitisation and compositions which encourage the rate of solutions of cementite are required, and will, no doubt, be found as knowledge increases.

Consumer Angle

Having outlined the metallurgical details concerning graphitisation and decarburisation, it is perhaps permissible at this stage to attempt to assess malleable cast iron from the angle of the purchaser. It is suggested that there is an increasing preference for blackheart rather than whiteheart, with the exception of thin section castings. In America enormous quantities of blackheart castings are produced, but very little whiteheart. The fundamental reason for this is undoubtedly the superior machinability of blackheart.

The 1944 American Cast Metals Handbook[3] states, "There is no ferrous product of comparable mechanical properties which machines with as great ease." Compare the Brinell hardness figures of sections of ¼ in. dia., and there is some justification for the previous comments. There are, however, many intricate castings of thick and thin sections and, if whiteheart be chosen, the machining of the thick sections must inevitably be somewhat slower than that of blackheart. If orthodox blackheart be chosen, then certain foundry difficulties may present themselves. Usually, the carbon content of whiteheart hard iron is higher than that of blackheart hard iron. The resulting extra fluidity is of considerable value in running thin and thick sections. The use of a similar high carbon content with a balanced manganese sulphur

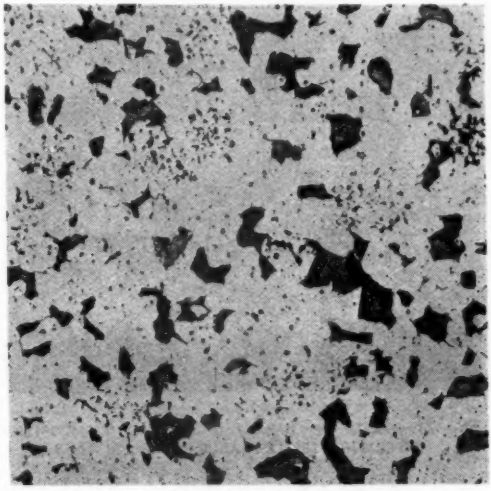

FIG. 20.—CENTRE OF BALANCED SULPHUR COMPOSITION AFTER DRASTIC DECARBURISATION. (× 60.)

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*A Paper presented to the Birmingham, Coventry and West Midlands branch of the Institute of British Foundrymen.

†Director, Castings, Limited, Walsall.

Malleable Cast Iron

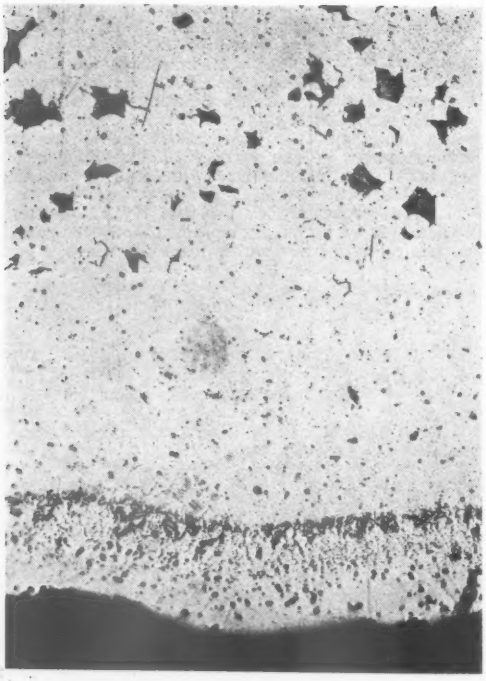

FIG. 21.—EDGE OF BALANCED SULPHUR COMPOSITION AFTER DRASTIC DECARBURISATION. (×60.)

ratio might suggest itself. However, under existing B.S. Specification, the minimum tensile strength demanded for blackheart or whiteheart is 20 tons per sq. in.

The use of a truly high carbon content giving iron of sufficient fluidity to produce on the average, light section castings, without excessive foundry scrap, usually involves that, however well controlled the annealing technique, the tensile strength is often below 20 tons per sq. in. on the 0.564-in. dia. bar, although relatively high elongations can still be obtained. The bend value on the standard bar is often below 90 deg. on account of the high graphite content.

It is possible, however, by combining the graphitisation and decarburisation process to obtain figures comparable with those of the orthodox low carbon blackheart irons. Table II gives some idea of the properties of such iron which apparently does not fall

TABLE II.—*Physical Properties.*

Type.	No.	Diameter, in.	Yield stress, tons per sq. in.	Maximum stress, tons per sq. in.	Yield stress / Max. stress: per cent.	Elongation, per cent.
0.564 in. Cross-sectional area ¼ sq. in.	1	0.580	11.3	20.8	54.4	13
	2	0.577	11.6	20.5	56.6	15
	3	0.580	11.0	20.5	53.3	18
	4	0.580	11.1	20.9	53.2	18
	5	0.577	11.5	20.7	55.5	17
	6	0.580	11.3	21.0	53.1	16
0.357 in. Cross-sectional area $\frac{1}{10}$ sq. in.	1	0.360	12.5	23.0	54.4	23
	2	0.363	12.2	22.6	54.0	24
	3	0.365	11.8	22.2	53.2	24
	4	0.359	12.4	23.1	53.8	23
	5	0.360	12.6	23.6	53.4	23
	6	0.364	12.3	22.7	54.2	22
0.252 in. Cross-sectional area $\frac{1}{20}$ sq. in.	1	0.260	12.3	22.4	55.0	25
	2	0.268	12.1	21.6	56.0	22
	3	0.264	12.6	22.1	57.0	21
	4	0.260	12.4	22.0	56.4	25
	5	0.261	12.3	22.0	55.9	25
	6	0.267	12.4	22.3	55.7	25

All the test-bars gave a sound fracture.

easily into either of the two water-tight compartments, blackheart or whiteheart.

Fractures of this material, when broken, are black and silky, and although the gradations of carbon content can be related under close observation to slight differences in the depth of black colour from surface to centre, such differences are not unusual in orthodox low-carbon blackheart. The initial carbon content of such material is between 3.0 per cent. and 3.2 per cent.; Si, 0.5 to 0.6 per cent.; Mn, 0.25 to 0.35 per cent.; S,

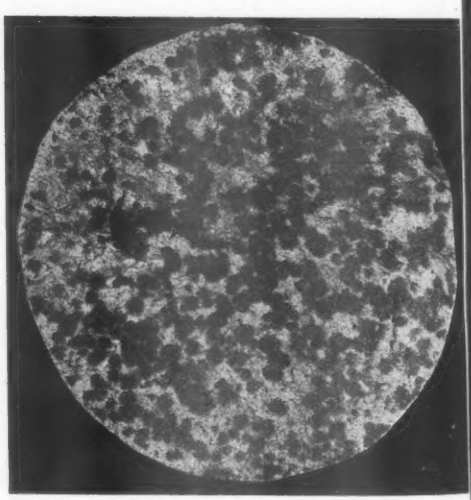

FIG. 22.—THREE-IN. FEEDER. (ACTUAL PHOTOGRAPH.)

0.10 per cent. It should be noted that, although substantially decarburised, this material has been processed to give maximum machinability, and complete graphitisation.

A New Process

Another unorthodox method of dealing with similar composition has been successfully developed in this country, by aiming at intense decarburisation. The physical properties of such material are extraordinary: Tensile strengths of 26 tons per sq. in. on a 0.564-in. dia. bar, associated with yields of 14 to 16 tons per sq. in. and elongations of 16 to 20 per cent. in 2 in. The bend bar, 1 in. by ⅛ in., can usually be hammered over until a flat U-bend is obtained without signs of fracture.

Figs. 20 and 21 illustrate the structure of this material, which breaks with a fracture not unlike mild steel. The Author has also had the privilege of seeing another, rather unorthodox type of malleable being produced. The process is daring and represents a metallurgical achievement of the first rank. Return scrap (sprue feeders, etc.) and steel scrap only, are remelted in a basic lined cupola (to avoid sulphur pick-up), and the metal of 2.8 per cent. carbon content flows continuously into one side of a tilting basic lined electric furnace. Steel scrap and alloys are fed intermittently *via* an ingenious shute, direct into the bath of the electric furnace and a continuous supply of metal of the following composition is available:—T.C., about 1.4; Si, about 2.0; Cu, about 1.4 per cent.; and manganese, sulphur and phosphorus, normal.

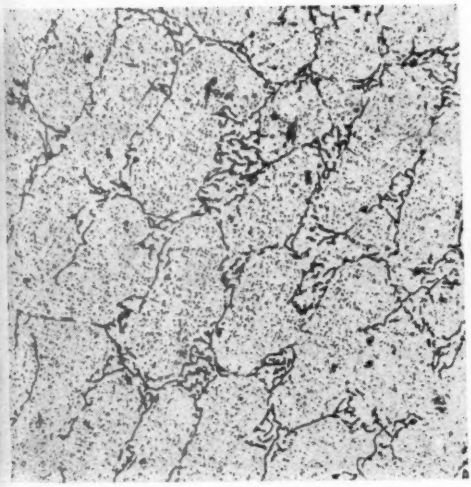

FIG. 23.—THREE-IN. FEEDER AFTER ANNEALING. (ACTUAL PHOTOGRAPH.)

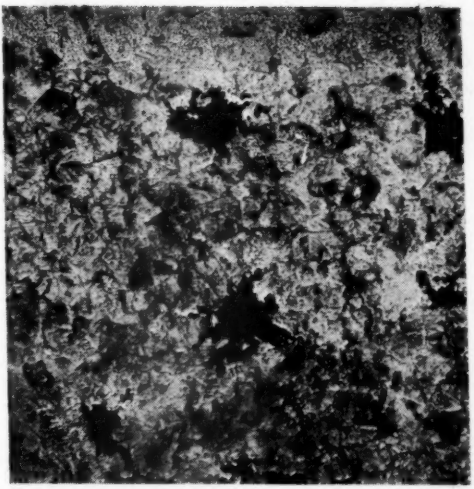

FIG. 24.—PEARLITIC MALLEABLE (GROUP A.) (× 200.)

Annealing is conducted in open-ended electric furnaces with roller hearths. The castings go through without packing and complete graphitisation is effected in 18 hrs. Physical tests taken on bars machined from typical steel-practice type coupons are said to give figures of 30 to 35 tons per sq. in. tensile and elongations of 20 per cent. on 2 in.

Composition

The analyses quoted so far, naturally bring up the question of composition, but before dealing with this, a few comments on the elements which affect graphitising rate would not be out of place. Silicon, aluminium, nickel, titanium, zirconium, copper and uranium are all known to accelerate graphitisation, and of these, aluminium, titanium and zirconium promote graphitisation even when present in amounts of only hundredths of 1 per cent. Manganese, chromium, molybdenum, vanadium and tungsten are all retarders of graphitisation, whilst the elements sulphur, boron, selenium and tellurium are also retarders,[4] because, it is alleged, their compounds with iron form films surrounding the carbide particles.

When manganese is present in much larger amounts than the content necessary to balance the sulphur content, and so form manganese sulphide (the ratio is 1.72 Mn to 1.0 S), then the excess manganese acts as a retarder of graphitisation—particularly in cooling through and just below the critical range. Strangely enough, evidence has been put forward that minute traces of boron facilitate graphitisation.[17]

Obviously, the lower the carbon content in either blackheart or whiteheart hard irons, the better the

Malleable Cast Iron

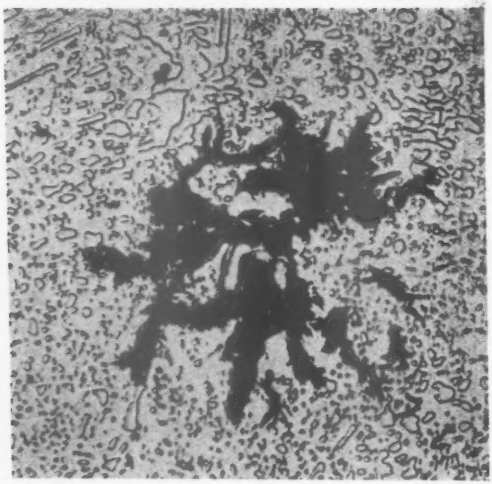

FIG. 25.—SPHEROIDISED MATRIX Z METAL. (× 1,000.)

physical properties of the annealed material. Foundry difficulties increase, however, as the carbon decreases. The choice, therefore, depends on the average type of castings to be produced, light sections demanding carbon contents of 3.0 per cent. and over, whereas heavy sections are an economic proposition at 2.2 to 2.4 per cent. The carbon content chosen will naturally determine the silicon content, high carbons requiring low silicons and *vice versa*. The reason is fairly obvious—if the combined total carbon and silicon percentages be too high, there is danger of primary graphitisation, as is shown by Figs. 22 and 23.

It is obvious that such material has properties inferior to common cast iron. Various elaborate formulæ have been published correlating the carbon and silicon percentages which ensure freedom from primary graphite and yet enable rapid graphitisation to be carried out. It is suggested, however, that the type of melting furnace, the atmosphere of the products of combustion in such furnaces and again the base iron used all effect the relation between carbon, silicon and the formation of primary graphite, and that a certain amount of trial and error is necessary before standardising on definite percentages.

The Author has observed over a number of years that the amount of graphite in the charge can effect the liability to primary graphite and also the graphitising rate during annealing. This is quite contrary to theory, which does not admit the possibility of graphite particles or nuclei in a melt of such compositions.

The above general remarks apply to carbon and silicon contents for normal production, advantages being taken of much higher silicon contents for short cycle blackheart irons, carbons of 1.5 to 1.7 per cent. and silicons of 2.0 to 2.5 per cent. being fairly common. These border-line compositions graphitise much faster but are extremely sensitive to melting conditions, pouring temperature variations and section changes. Control, therefore, must be very rigid, especially as primary graphite can so easily be precipitated in unexpected places, such as thin sections, whilst thicker sections are perfectly normal. The precipitation often occurs at local hot spots in the mould and can easily escape detection.

Manganese and sulphur should be considered in their relation to each other, ease of graphitisation being facilitated if there is a slight excess of manganese over the amount necessary to balance the sulphur and so form manganese sulphide. Usually, a manganese content of twice to two and a half times the sulphur is all that is required. Amounts of one half to one per cent. of manganese in excess of the theoretical requirements are often used in the production of so-called pearlitic blackheart. With regard to decarburisation and orthodox whiteheart, equal quantities of sulphur and manganese are usually aimed for, as large excesses of sulphur necessitate such prolonged high temperature annealing to eliminate primary cementite in heavy sections, as to be commercially impracticable. Phosphorus up to 0.2 per cent. is soluble in ferrite; any excess over this percentage forms iron phosphide which—on account of its low melting point—must be

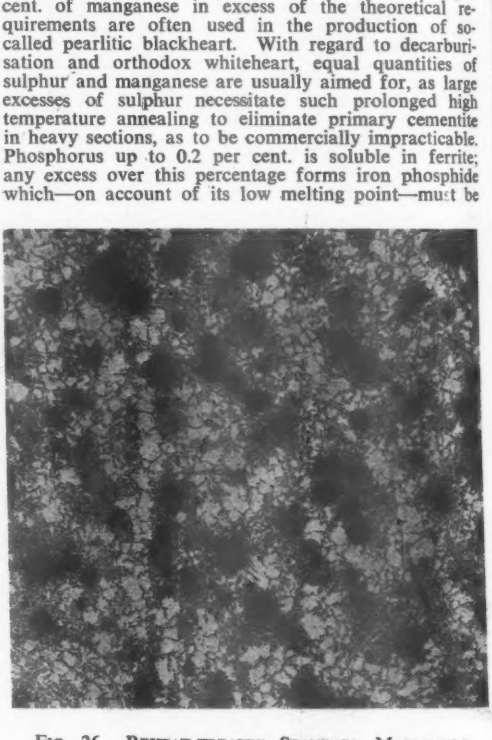

FIG. 26.—REHEAT-TREATED STANDARD MALLEABLE. (× 60.)

avoided. American makers of blackheart, therefore, limit the phosphorus content to 0.20 per cent. but maintain their composition very close to this figure,[18] claiming a slight increase in tensile strength and a slight increase in speed of graphitisation. Again, personal observation suggests that up to 0.2 per cent. in blackheart is not detrimental unless appreciable decarburisation has occurred, when the Author prefers a limit of 0.1 per cent. Combination of the maximum phosphorus content and high silicon percentages in American blackheart appears to have sometimes caused an embrittlement known as white fracture malleable. Recent work on the effect of phosphorus in whiteheart, shortly to be published,[19] has revealed important facts relating phosphorus contents appreciably over 0.06 per cent. with low shock impact and bend values. In whiteheart, therefore, this element should be as low as possible.

Residual Elements

These must be considered from two viewpoints—graphitisation and decarburisation. From the angle of graphitisation, chromium contamination must be avoided, 1.0 per cent. giving rise to serious annealing difficulties. Tellurium,[17] however, in amounts of 0.003 to 0.005 per cent. has been used to offset mottling or primary graphitisation in heavy sections. This small percentage permits the use of silicon contents high enough to make a substantial reduction in the time required for annealing. Here again, however, if substantial decarburisation has occurred, graphitisation around the critical range may be substantially retarded and pearlitic rims more easily produced.

Copper,[18] in amounts of up to 1 per cent. finds favour as a means of ironing out differences of annealability and also to increase resistance to corrosion. Recent information[15] from America suggests that boron in amounts of 0.001 to 0.003 per cent. accelerates graphitisation, offsets the effect of up to 0.1 per cent. chromium and in general smooths out annealing difficulties. Small additions of aluminium are also known to accelerate graphitisation. From the angle of decarburisation and the effect of residual elements,[19] an immense amount of invaluable work has been carried out during the war and a tremendous amount of data will shortly be available to the industry.

The Author asks those connected with the industry and in particular the makers of pig-irons, to read this report very carefully. It will be dangerously easy to conclude that relatively high percentages of certain residual elements can be tolerated without loss of physical properties. This is reasonably true provided the annealing cycle is sufficiently long, but care should be taken that no obstacles be placed in the way of progressive malleable ironfounders aiming for short cycle anneals in modern ovens. It is suggested that a casual attitude to the presence of residual elements will be a handicap to future progress.

Pearlitic Malleable Irons

These specially produced malleables are harder, stronger and more resistant to abrasive wear than standard blackheart malleable iron, but usually less ductile and less machineable. The name *Pearlitic* is misleading, implying a pearlitic matrix, whereas the matrix may be any decomposition product of austentite and even spheroidal cementite.

These irons are made by any of the following main methods:—

(1) By adding a suitable element such as those listed as retarding graphitisation;

(2) by stopping the annealing treatment of normal material at an early stage;

(3) by a further heat-treament of standard annealed malleable;

(4) by combinations of the above methods.

This type (shown in Fig. 24) can fairly easily be produced with an excess manganese content of the order of one half to one per cent. graphitisation during, and under, the critical range is retarded, the amount of pearlite retained being proportional to the excess manganese content. Fig. 25 shows a spheroidised matrix produced by cooling ropidly through the critical range and tempering the decomposition product of austentite—sorbite or pearlite until the carbide has spheroidised.

When standard malleable (Fig. 26) is heated above the critical range some of the graphite is re-dissolved to form iron carbide. This resolution occurs first at the grain boundaries and around the graphite nodules. Increased time and/or higher temperatures result in the retention of more carbon in the combined form. The type of matrix is conditioned by the rate of cooling from above the critical range. These brief comments should be sufficient to indicate that almost any type of structure, familiar to steel metallurgists, can be obtained as a matrix with graphite nodules interspersed. Tensile strength of 45 to 50 tons per sq. in. can be obtained with elongation of 1 and 2 per cent.

Flame hardening,[20] or surface hardening, is also receiving a great deal of attention and, as the name implies, consists of reheating local areas above the critical range, to produce local hardness or wear resistance. Cyanide hardening has been very successfully applied to whiteheart malleable cast iron, and malleable cast iron which can be successfully welded without after treatment has been in use for some few years.

Conclusion

The Author's enthusiasm for malleable cast iron has resulted in a very long Paper. In spite of this certain aspects have been very sketchily dealt with, for instance the production of pearlitic malleable, the subject of gas content and the effect of melting conditions on annealability. In short it is extremely difficult to summarise the observations of some 18 years in some pages. Malleable cast iron is a first-class product, the physical properties of which *can* be controlled and varied to an infinite degree. It is, however, essential that a complete list of physical properties be established and published to enable the modern engineer to fully appreciate its possibilities. Little information is available on fatigue endurance, notch fatigue, shear strength, compressive strength, impact

resistance modulus of elasticity and so on. This state of affairs must be remedied.

Frankly, the Paper is an attempt to outline the keyboard of an industry and to suggest that only the white notes are used. It is believed that a greater knowledge of the black notes will ultimately enable us to play an infinite number of tunes—tunes which the modern engineer will be anxious and ready to use in his symphonies of design. It is suggested that on the average the malleable ironfounders are too smug and complacent, hiding their ignorance under the so-called safety factors of experience and long annealing cycles, so that in the past they have been too easily daunted by failures in attempts at quick annealing, and even now are not yet ready to grasp with both hands the opportunities presented to us by the modern furnace and equipment builders.

Finally, the Author would like to thank the directors of Castings, Limited, Walsall, for their encouragement; also the British Cast Iron Research Association, and in particular Mr. Morrogh, for their help in connection with the photographs.

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FOUNDRY STATISTICS

The Bulletin of the British Iron and Steel Federation for December, 1946, shows that the tendency for women to leave the industry is gradually being arrested. The total average number of people at work in ironfoundries on October 5, 1946, was 127,957, of whom 118,999 were men and boys, and 8,958 women and girls. The net gain shown by comparison with the previous month's figures is 3,866, made up of 3,876 males and a loss of 10 females. On a year's showing there has been a gain of 28,985 males and a loss of 757 females.

The weekly average delivery of steel castings during November, at 3,300 tons, showed a gain of 100 tons over October and 200 tons over November, 1945. The average weekly production of steel for castings was 7,400 tons during November.

Founders Company Fellowships

THE Worshipful Company of Founders of the City of London, to whom Ordinances were granted as long ago as July 29, 1365, was originally formed to ensure that work by founders in the City of London should only be with good metal. The Company believe that the development and progress of founding and the science of metallurgy must depend very largely on attracting to the industry highly trained men of evident talent. To that end the Company award Fellowships so as to give facilities for advanced education to men who have already completed their normal course of training, either at a University or at least to a high educational standard.

These Fellowships, called "Founders Company Fellowships," are available to candidates who appear likely to be able to make good their careers in the founding industry if afforded facilities for further courses of study designed specially to qualify them towards that end. Fellows are chosen by a selection committee from among applicants who have completed such training as mentioned above, in chemistry, physics, metallurgy (more especially in connection with molten metal) and allied sciences. In addition, some previous practical foundry training and experience, together with, if and when possible, the Diploma of the British Foundry School would carry weight with the selection committee. At the same time the committee pays considerable attention to the character and powers of initiative of candidates.

The course to be followed by the Fellow will, in each case, be chosen with the object of adding to his scientific equipment, that which appears to be most necessary for adapting him to some branch of the founding industry. There will be no limitation to the nature of the course which may be selected; it might include research, a period in works or foreign experience; due regard being paid to the particular wishes and aptitude of the Fellow.

The normal value of the Fellowship is £300 per annum. Payment will be made monthly in advance. The Fellow will be expected to devote his whole time to work approved by the Company and to submit periodical reports of progress, if required. No other work for which payment would be received shall be undertaken by him without consent.

Candidates should not be less than 21 years of age on September 1 of the year of application and will be required to furnish particulars of their name, address, age, academic and/or other training, etc. They will subsequently be required to attend before the selection committee. The tenure of the Fellowship dates from September 1.

Applications must be received not later than May 1 by the Clerk of the Worshipful Company of Founders, Founders' Hall, 13, St. Swithin's Lane, London, E.C.4, to whom all enquiries should be addressed.

DANGEROUS PEAK IN METALS

By "ONLOOKER"

Since the rise in the prices of non-ferrous metals carried them well past any level which could be deemed reasonable, even allowing for some increase in production costs, there has from time to time been much talk about the likelihood of a "buyers' strike." This somewhat overworked phrase was clarified over Christmas in the United States, when, according to reports reaching this country, prices of certain foodstuffs fell sharply as a result of a taboo by consumers. This is the literal and obvious manner in which boycotting of a commodity on account of its being over-valued is bound to take place, but the term "buyers' strike" is now used in a wider sense to imply that the cost to the consumer of some substance has reached a level which makes its employment uneconomic. This may be, of course, because another article has replaced it, having forced its way in through relative cheapness or on account of availability. Tin lost ground during the war which it may take some time to recover, for certain substitutes were employed in place of tinplate for food packing, and in the case of gunmetal and bronze, specifications were changed to reduce the tin content. These were expedients dictated by a condition of scarcity and not due to an unduly high price; actually, the increase in the tin quotation by comparison with what has happened in other non-ferrous metals has not been out of the way.

Copper, Lead and Zinc Prices

Things are rather different, however, with copper, lead and zinc, where the rise has been phenomenal, and it is fairly evident that there must be a threat of replacement by some cheaper substance. At the present time there is not much chance of a boycott in spite of these high prices, for demand out-matches supply owing to the "empy larger" situation in which the world finds itself after the long break in production imposed by the war. The truth is that replacement must be made at any price, and until this intolerable situation is relieved economic factors will not operate. Perhaps the most striking example of where the shoe will pinch is to be found in the relation between copper and aluminium. These two are old rivals, for they are competitors over a wide field, and any undue rise in the price of copper has always let in aluminium. This happened in 1929, when the two metals were practically on level pegging so far as price was concerned, but the fact that by volume aluminium is about one-third the weight of copper gave it a distinct pull, and it will be remembered the light metal was preferred for high power transmission lines in the United Kingdom. To-day, aluminium is quoted at £72 15s., with every expectation that this price will be maintained for a couple of years, whereas copper stands at £117, with no guarantee that there will not be another increase. It is obvious that copper does not stand much chance against aluminium in these circumstances, but it must be remembered that it is not always possible

(Continued at foot of next column.)

PUBLICATIONS RECEIVED

Oxygen in War and Peace. Published by the British Oxygen Company, Limited, Grosvenor House, Park Lane, London, W.1, and elsewhere.

The fundamental importance of the industrial gases to modern activities, be they war or peace, is shown in this well-written book. There is a logical division into six sections, and these detail just how oxygen has played its part in the medical services, naval and military affairs, war in the air, home defence, and post-war reconstruction. In each section the reader is given a picture of routine uses, of special application of contributions to major military operations and victories. Throughout the whole of the 84 pages interest is well maintained.

Fuel, Power and Heat Costing. Published as Bulletin No. 48 by the Ministry of Fuel and Power, and obtainable free of charge from Queen Anne's Chambers, Dean Farrar Street, London, S.W.1.

Some foundrymen seem to make a real hobby of costing; others just disinterestedly fill in forms supplied by the costing department. For the former class, this booklet is full of interest, as it makes the fuel item a sort of special department. The reviewer would not advocate this for the foundry industry, where fuel must remain just one important raw material. The principles laid down, however, are sound and worth study by all interested in costing.

(Continued from previous column.)

by any means to oust the heavier metal in favour of aluminium and light alloys generally. Copper, for example, is an integral part of brass, but with zinc at £70 the alloy, of course, relatively very expensive. It is also a fact that drastic changes of the kind outlined above do not come too easily, for in nearly every instance careful thought has to be given to the practical issues involved. In these innovations the engineer and the scientist have much to say.

In the absence of the terminal market in London, the blame for the present inflated values of copper, lead and zinc are often enough laid at the producers' door, but for a number of reasons it is hardly fair to levy such a charge. Actually it is true to say that the producers are no more in love with these high prices than the merchants and consumers, for they know from past experience what the aftermath of such conditions is likely to be. Output from the mines is unduly stimulated and consumption suffers for the reasons already stated, so that in the long run nobody is served. It is quite certain that most of the mining interests view the present trend with much misgiving and would be only too glad to see a halt in the advance. Many people believe that the re-establishment of a free market would give the opportunity for selling to declare itself and it would not be surprising to see a start made on the New York commodity market before very long.

E

EDUCATION AND TRAINING IN THE FOUNDRY

The following is the discussion of "Some Problems of Education and Training in the Foundry," by Mr. J. Longmuir. This Paper was read before a meeting of the Birmingham, Coventry and West Midlands branch of the Institute of British Foundrymen, and was published in the FOUNDRY TRADE JOURNAL *for January 9.*

DISCUSSION

At the conclusion of the Paper, MR. J. HIRD proposed a vote of thanks to Mr. Longmuir, and in doing so referred to the remarkable interest taken by members of the branch in the question of training, which was obvious from the large attendance. The scheme in operation at the Thorncliffe works had been made as near to perfection as any of them could hope to achieve. He was sure they had all learned a great deal concerning the starting of such a scheme and what they had to aim at. The Institute, in conjunction with other bodies, had formulated training schemes in London and Manchester, and on the following Tuesday a meeting would be held to consider the starting of a similar scheme for the Birmingham area, so that they were not far behind other centres. There was a feeling that it should become a national effort, but it was also felt that something should be done locally at first.

MR. G. W. BROWN seconded the resolution, remarking that it was an important subject. The Paper had made them realise the necessity for making a start in the industry, and he congratulated Mr. Longmuir heartily on the way he had compiled it. All in the foundry industry must realise that it meant a great deal of hard work. He thought the success already achieved under the scheme must have given Mr. Longmuir great satisfaction.

Before putting the resolution, the BRANCH-PRESIDENT (Mr. E. C. Dickinson) added his personal thanks to Mr. Longmuir. The question of setting up a committee for the recruiting of apprentices was being discussed by the branch in conjunction with the British Cast Iron Research Association and other organisations in the Birmingham area. They could not hope to carry on their businesses successfully unless they were able to give a good training in their foundries. Generally speaking, they found that lads did not want to become apprentices, but were anxious to be improvers.

Inducement Necessary

MR. BROWN was convinced that, if they were to get boys to go into the foundry, they would have to offer them some inducement. It was not only a question of wages. The competition between the foundry and other departments of large works was very great. He liked the scheme which provided training for different departments, and especially the employment of boys of differing social standing, in the foundry.

MR. LONGMUIR said they had no difficulty in getting apprentices, but the difficulty was of keeping them in the foundry where they usually had 10 vacancies. Until provision was made for foundrymen changing their clothes, foundries would not become popular. They must take a personal interest in the boys. He did not think the payment of higher wages would do it. It was a better job they were looking forward to. Under his firm's scheme, shower baths had been provided for the apprentices in training, and they had plans for baths for other workers. If they started with the boys, they would gradually get the other workers to use the baths, and it would gradually become a regular thing.

Contact with Schools

In reply to other members, MR. LONGMUIR said they were able to absorb practically all the boys from the four villages round the works. He had spent Saturday morning for the past three months in interviewing boys for various positions. They kept in close contact with the schools, and also took the secondary school teachers round the works. They realised they must get the support of the teachers, and believed that would help them to obtain boys. The weakness about the group scheme for foundry training was that sometimes if one firm dropped out the whole scheme came to an end. They must look at the problem from a national point of view. The days of severe competition between firms had gone, and the stage was now reached when five or six firms could set up a foundry school with representatives of all firms forming an advisory committee. Such schools, however, must be kept as close as possible to the industry. If they selected the biggest firms and had a technical school in the vicinity they would do good.

Regarding the enormous shortage of boy labour in the Birmingham area, MR. LONGMUIR thought that if local firms were really serious and tried hard they would be able to get boys. It was going to be a big struggle, and they would have to convince both the boys and their parents of the suitability of foundry work. In his district, generally speaking, it was not the boys and girls who asked about wages but their mothers.

MR. A. J. SHORE said his firm usually found when interviewing boys that their minds were set against entering the foundry. They had to find out why if they asked for a number of apprentices for the works they did not get a single boy for the foundry. He thought that by applying the rules Mr. Longmuir had given that they could change the situation.

MR. LONGMUIR said that Birmingham firms would have to go out after boys, and be determined to get them. Then, he believed, they would meet with a certain amount of success.

Source of the Difficulty

MR. DICKINSON thought the difficulty of obtaining boys went back to the schools, and MR. LONGMUIR replied that the best way was to try to get boys who were leaving school to visit the foundry. By showing them the experiments and tests which were made they would get them interested in the technical side of foundry work. They should also spend money on advertising for boys because the obtaining of boys was just as important as obtaining materials.

MEALS FOR FOUNDRY WORKERS

Some time ago application was made by the Council of Ironfoundry Associations regarding an increased meat ration for foundry workers, at the same time as the application by the unions, but this was rejected by the Ministry. Further attempts are being made to secure the increased rations, however, and the unions are also co-operating. One of the reasons advanced by the Ministry for the refusal of the application was the fact that the workers should be able to secure the benefits of canteen meals at work. When it was pointed out that many foundries are not in possession of canteens, the Ministry of Labour recommended that in those circumstances full advantage should be taken of the packed meal service.

Packed Meal Service

The packed meal service consists of meals which include sandwiches, meat pies, sausage rolls, cakes, or anything else which can be made from foods which the Ministry make available.

The following suggestions show how packed meals and snacks may be provided.

(1) A room may be furnished with food storage bins and a table at which refreshments can be prepared and from which they can be distributed.

(2) The packed meals may be prepared by a full meals canteen for distribution.

(3) They may be made up by an employer at his central office or depot, or they may be prepared by any industrial canteen, by a private caterer or British Restaurant.

(4) In many rural districts there are already Rural Pie Schemes in operation by which pies and cakes are supplied to workers and residents alike.

(5) Where none of these methods suits the circumstances a baker, or, in exceptional circumstances, even a householder, may be licensed to prepare packed meals.

Advice on Meals Schemes

Employers wishing to set up a meals scheme may seek the help and advice of the Food Executive Officer or the Divisional Food Officer regarding licensing and facilities generally, or of the District Inspector of Factories or the Factory Canteen Adviser regarding the setting up and running of canteens and mess rooms.

To start a canteen or packed meals service, the employer need only obtain from the Local Food Office, and complete, an application for (AL.5) for an industrial canteen licence. When the licence is granted and the service is running, only one form must be regularly completed, namely a record once every eight weeks of the meals which have been consumed.

Under the Ministry's regulations, the necessary food may be made available for hot meals or packed meals on the job for any number of workers however large or small.

TOP PRINTS

By "CHIP"

The question of suitable prints for patterns requiring cores is one which often causes considerable discussion between pattern-makers and moulders, particularly when a core has to be retained in position in the top of a mould. Fig. 1 is such a case, and shows a portion of a crane barrel with the joint of the mould at AA. It is required to position and secure core B in the body core C, and this is usually accomplished by placing a print as dotted line in the body core and a top print at D.

This print is usually the bone of contention, for, unless made with a certain amount of clearance, a "crush"

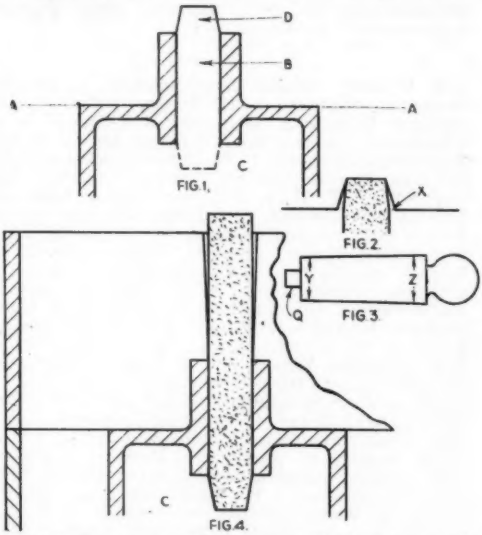


FIG.1. FIG.2. FIG.3. FIG.4.

is liable to occur on closing, even if the print portion of the core has been shaped. It is best if such a top print is used to ensure adequate clearance as X, Fig. 2, which, although resulting in a certain amount of "flash," is far safer when assembling.

A better method, however, is to eliminate the top print and use a "pin" instead. This consists of a piece, as Fig. 3, where Y is the diameter of the core and Z slightly larger to facilitate its withdrawal from the mould. The dowel portion Q is of any convenient size to suit the top boss of the pattern. The method of assembly is to place the top in position and then introduce the core forming the hole in the boss through the space left by the pin, as Fig. 4, which shows the print in core C and illustrates the clearance afforded by the taper on the pin, Fig. 3.

For such jobs as that illustrated, the use of a "pin" instead of a top print is to be preferred.

INSTITUTE OF BRITISH FOUNDRYMEN

ELECTION OF NEW MEMBERS

At a meeting of the council of the Institute of British Foundrymen, held at York, on January 18, the following were elected to the various grades of membership.

FIRST LIST

As Subscribing Firm Members

Argarwal Iron Works, Agra, India, cast iron manufacturers (representative, M. P. Argarwal); International Alloys, Limited, Aylesbury, Bucks, aluminium alloy manufacturers (representative, Dr. E. Scheuer); Western Manufacturing Company, Bombay, India, engineers (representative, V. Arjan).

As Members

K. E. Batty, designer draughtsman, P. C. Fassotte, consulting engineer; S. H. Blythe, assistant works manager, D. King & Sons, Limited, Glasgow; N. G. Chakrabarti, assistant works manager, Bhartia Electric Steel Company, India; J. W. Dawson, technical representative, Morgan Crucible Company, Limited, London, S.W.11; E. Heap, chief metallurgist, Andersons, Limited, New Zealand; F. J. Hope, managing director, F. J. Hope, Limited, Cirencester; A. E. Hughes, works manager, J. Fowler, Limited, Sprotborough; T. D. Hunter, metallurgist, Taikoo Dockyard Engineering Company, Hong Kong; A. C. Malcolm, assistant works manager, Qualcast, Limited, Derby; D. R. Malik, foreman, Foundries, Ordnance Factory, Muradnagar, India; G. A. J. Mathers, foundry foreman, Higgs Motors, Limited, Witton; F. C. E. Sleap, foundry superintendent, Cyprus Mines Corporation, Cyprus; D. F. B. Tedds, research metallurgist, Bristol Aeroplane Company, Limited, Bristol; F. T. Tiesdell, inspector of castings, Clyde Alloy Steel Company, Limited; C. R. Tottle, lecturer in metallurgy, Durham University; S. W. Vickery, managing director, Ferro-Enamels, Limited, Wolverhampton; F. Wade, managing director, Barlow & Wade, Limited, Stourbridge; B. Walker, foundry manager, Sykes & Harrison, Limited, Manchester; W. L. Warrington, foundry superintendent, Alloy Steel (N.Z.), Limited, New Zealand; W. T. Bruce,* works manager, Staveley Coal & Iron Company, Limited, Chesterfield; W. W. Braidwood,* development metallurgist, Mond Nickel Company, Limited, London, W.1; J. Hird,* works manager, Coneygre Foundry, Limited, Tipton; C. Renwick,* foundry manager, J. & E. Arnfield, Limited, Droylsden; H. C. Stewart,* M.C., ironfounder, Grahamston Iron Company, Limited, Falkirk; E. Tattersdill,* foreman moulder, T. Richards & Sons, Limited, Bristol.

*Transferred from associate.

As Associate Members

A. A. Adam, moulding shop foreman, Cruikshank & Company, Limited, Denny; R. G. Bate, laboratory assistant, Dudley Foundry Company, Limited, Brierley; F. H. Beale, metal pattern-maker, Ley's Malleable Castings Company, Limited, Derby; D. Berridge, chief estimator, David Brown & Sons (Huddersfield), Limited, Penistone; V. A. Blake, assistant chemist, City Engineering Works, Pretoria, S.A.; T. D. Burnett, fettling shop manager, English Steel Corporation, Limited, Sheffield; F. B. Butler, works superintendent, Gloucester Foundry, Limited; T. Carruthers, planning engineer, F.H. (Newcastle), Limited; V. R. Chandrasheker, foundry manager, Trades (India), Limited, Bombay; D. J. Close, cost accountant, S. Russell & Sons, Limited, Leicester; J. T. Dallison, staff foreman, Qualcast, Limited, Derby; A. Dawson, foreman moulder, J. Stirk & Son, Limited, Halifax; R. D. Fernie, foreman pattern-maker, Cruikshank & Company, Limited, Denny; J. Finlay, foundry foreman, Cruikshank & Company, Limited, Denny; J. H. Fraser, foreman, Grahamston Iron Company, Limited, Falkirk; C. Gale, under foreman, Hepworth & Grandage, Limited, Bradford; T. S. Gartshore, metal pattern-maker fitter, Lion Foundry Company, Limited, Kirktintilloch; G. Hall, assistant foundry metallurgist, Hepworth & Grandage, Limited, Bradford; H. V. Heath, planning engineer, Brecknell, Munro & Rogers (1928), Limited, Bristol; J. Hetherington, melting stage manager, Jarrow Metal Industries, Limited, Co. Durham; A. G. Hill, floor moulder, P. & A. Campbell, Limited, Bristol; K. Horsfall, Sagar-Richards, Limited, die designer, Luddendenfoot, Yorks; J. W. Hulme, metallurgist, R. J. Hunt & Son, Limited, Kings Norton; R. R. Hunter, foreman core-maker, Cruikshank & Company, Limited, Denny; H. Key, chemist, Stanton Ironworks Company, Limited, nr. Nottingham; D. King, foundry foreman, Cruikshank & Company, Limited, Denny; H. Lanfear, foundry manager, Crofts (Engineers), Limited, Bradford; T. W. Laybourn, foundry foreman, Wilsons Forge (1928), Limited, Bishop Auckland; J. F. Louth, general moulder, Crossley Premier Engines, Limited, Sandiacre; E. Lumb, die department foreman, Sagar-Richards, Limited, Halifax; MacBeth, technical representative, Morgan Crucible Company, Limited, London, S.W.11; D. McCaig, technical officer, M.O.L. Glasgow; J. Meynell, chargehand moulder, Leys Malleable Castings Company, Limited, Derby; J. Miller, iron moulder, J. Fowler (Leeds), Limited, Doncaster; A. J. Milligan, core-maker, Jarrow Metal Industries, Limited; C. Moss, engineers' pattern-maker, Metal Box Company, Limited, Windhill, Shipley; C. Mothersole, foundry foreman, Markham & Company, Limited, Chesterfield; W. G. Murray, assistant foundry foreman, Lion Foundry Company, Limited, Kirkintilloch; E. G. Oliver, core-maker, G. Blair & Company, Limited, Gateshead; N. M. Reynolds, metallurgist and chemist, Sterling Metals, Limited, Coventry; C. R. E. Riles, brass moulder; F. Robinson, foreman steel dresser, G. Blair & Company, Limited, Gateshead; G. H. Ross, brass moulder, Gray & Caldwell, Limited, Paisley; L. A. de L. Santos, staff engineer, Inspector of Technology, San Paulo, Brazil; J. Sharp, moulding shop foreman; F. E. Shortland, core-maker, S. Russell & Sons, Limited, Leicester; J. Sinclair, Labour Supply Inspector, M.O.L., Glasgow; A. H. Stephenson, core-maker, G. Blair & Company, Limited, Gateshead; W. P. Stewart, foreman moulder, Grahamston Iron

Company, Limited, Falkirk; G. F. Tompkins, foundry planning engineer, J. Gardom & Company, Ripley, Derbyshire; H. E. Watkins, iron moulder, Bristol Foundry Company, Limited; S. Whitaker, technical representative, Qualcast, Limited, Derby; P. M. Williams, foundry plant engineer, Constructional Engineering Company, Limited, Birmingham; J. J. Wynnes, draughtsman, L. Sterne & Compnay, Limited, Hillington, Scotland.

As Associates

W. Allen, foreman, Qualcast, Limited, Derby; B. R. Chatterjee, improver, Kulti Iron Works, Dt. Burdwan, Bengal; W. Donald, steel moulder and metallurgist student, Coltness Iron Company, Limited, Glasgow; J. G. Durrans, apprentice moulder, J. Durrans & Sons, Limited, Phœnix Works, Penistone; T. K. Ganguly, improver, Indian Iron & Steel Company, Calcutta, India; N. V. Hall, die tester, Qualcast, Limited, Derby; F. G. Hendley, first hand cupola, Qualcast, Limited, Derby; L. S. Jackson, moulder, Consett Iron Company, Limited, Co. Durham; W. P. McCrady, moulder, C. A. Parsons & Company, Limited, Newcastle-upon-Tyne; R. Muir, moulder, Cruikshank & Company, Limited, Denny; T. Nesbitt, moulder, Consett Iron Company, Limited, Co. Durham; J. H. Pearson, apprentice moulder, Consett Iron Company, Limited, Co. Durham; J. C. Robinson, junior foundry draughtsman, Qualcast, Limited, Derby; W. O. Russell, Pattern-maker, Consett Iron Company, Limited, Co. Durham; J. G. Smith, pattern-maker apprentice, Brightside Foundry & Engineering Company, Limited, Ecclesfield; W. C. Stirk, apprentice core moulder, Consett Iron Company, Limited, J. Stones, moulder, Consett Iron Company, Limited; A. J. White, laboratory assistant, Qualcast, Limited, Derby.

SECOND LIST

As Subscribing Firm Members

Sir W. H. Bailey & Company, Limited, ironfounders (representative, A. Kirkham); A. Hamilton & Sons, Limited, Victoria Foundry, Cardiff, steelfounders (representative, O. J. Croxford); Massey-Harris Limited, manufacturer of farm machinery (representative, G. A. Metcalfe, Stretford, Manchester).

As Members

A. Bailey, director, Goulds Foundries, Limited, Newport, Mon; G. M. Brown, foreman pattern-maker, Goulds Foundries, Newport, Mon.; J. Drachmann, civil engineer, A/B Svenska, Strebelverken, Sweden; J. V. Ellis, foundry superintendent, Hoover, Limited, London; R. F. Entwistle, O.B.E., works manager, Moffats, Limited, Blackburn; R. A. Gillespy, director and works manager, Dobson & Barlow, Limited, Bolton; J. Henry, works manager and engineer, Dorman Long & Company, (Africa), Limited, Johannesburg; A. J. Ingen-Housz, director, Dru Foundries, Holland; G. Kelly, chief designer, High Duty Alloys, Limited, Slough, Bucks; D. L. S. Owen, proprietor and manager, Dynevor Engineering Company, Neath; G. L. Page, assistant to managing director, Alliance Foundry Company, Limited, Luton; J. H. Peck, area manager, T. W. Ward, Limited, Manchester; G. D. Thomas, manager, H. G. Summerfield, Limited, London, N.W.1; L. R. Williams, research metallurgist, Telegraph Construction Maintenance Company, Limited, London; J. F. Chambers,* director and works manager, Ealing Park Foundry, Limited; R. L. Handley,* manager, Foundry Department, Ferranti, Limited, Hollingwood; W. R. D. Jones,* Professor of Metallurgy, University of Cardiff.

*Transferred from associate member.

As Associate Members

R. E. Abrahams, metallurgist, Ealing Park Foundry, Limited; A. P. Banks. research chemist, Distington Hematite Iron Company, Limited, Workington; A. A. Atkinson, representative, Barrow Hematite Steel Company, Limited; C. H. Cant, pattern-maker, Booth & Brookes, Limited, Burnham-on-Crouch, Essex; J. Carr, foundry foreman, D.H. Diecasting, Company, Limited, Slough; P. J. Eberth, section leader, Campbell & Isherwood, Limited, Liverpool; E. Eke, engineer, THK. Motor Fab. Dökümhane Sefi, Ankara, Turkey; N. Ulutaslar, moulder, T.H.K. Motor Fab. Dökümhane, Ankara, Turkey; J. Ford, chief engineer, Paterson Hughes Engineering Company, Limited, London W.C.2; L. B. Goodchild, representative, Staveley Coal & Iron Company, Limited; L. Gribbon, moulder Metropolitan Vickers, Limited, Manchester; R. N. Gutteridge, Bagshawe & Company, Limited, Dunstable; N. J. Hooker, director, W. J. Hooker, Limited, London, N.W.3; W. B. McG. Imrie, pattern-maker, S.A. Railways, Pretoria, South Africa; R. J. Antia, civil engineering student, Bombay University, India; J. Johnston, foundry superintendent, P. & R. Jackson & Company, Limited, Salford; F. C. Keeble, pattern-maker, Ransome & Rapier, Limited, Ipswich; R. E. McCarthy, training for executive position, S. H. Johnson & Company, Limited, London, E.15; E. J. Morrad, iron and brass moulder, Cockings, Limited, Gravesend; R. E. Payne, foundry and architectural works superintendent, W. A. Baker, Limited, Newport; C. W. E. Rickets, director, W. J. Hooker, Limited, London, N.W.3; R. B. Sanderson, assistant manager, British Pigirons, Limited, London S.W.1; E. F. Selby, foundry manager, Associated Brassfounders (Birmingham), Limited, London, N.W.10; C. W. C. White, assistant works manager, Ashwell & Nesbit, Limited, Leicester; J. Wood, foundry foreman, Platt Bros. & Company, (Holdings) Limited, Oldham; G. L. Nesbit,* technical sales representative, Ley's Malleable Castings Company, Limited, Derby.

*Transferred from associate.

As Associates (*over* 21)

E. Edwards, non-ferrous moulder, W. A. Baker & Company, Limited, Newport; S. Ferris, moulder, Titan Foundry Company, Limited, Cardiff; M. G. Jones, foundry buyer and coster, Tubal Cain Foundry, Cardiff; J. D. M. Mather. foundry trainee, Mather & Smith, Limited, Ashford, Kent; J. G. Yhearm, core-maker, C. A. Parsons & Company, Limited, Newcastle-upon-Tyne.

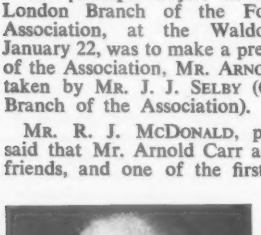
(*Continued on page* 111.)

FOUNDRY COKE MERCHANTS' ASSOCIATION

LONDON BRANCH LUNCHEON

The principal object of a luncheon given by the London Branch of the Foundry Coke Merchants' Association, at the Waldorf Hotel, London, on January 22, was to make a presentation to the Chairman of the Association, MR. ARNOLD CARR. The chair was taken by MR. J. J. SELBY (Chairman of the London Branch of the Association).

MR. R. J. MCDONALD, proposing "The Guests," said that Mr. Arnold Carr and himself were very old friends, and one of the first orders which Mr. Carr



MR. ARNOLD CARR

President of the Foundry Coke Merchants' Association

obtained for coke was from himself. Since those days, however, Mr. Carr had progressed far, and was now a man to whom members of the Association turned instinctively for guidance.

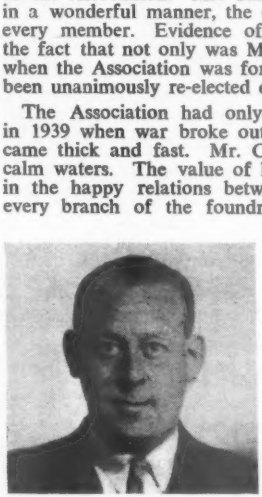
As for the Association, he said none of them knew what the future held, but he, for one, felt that it was doing a job which could not be done by anybody else. It was a big job to keep foundries supplied with coke, and as long as members did their work as they were and had been doing, he did not think they had anything to fear.

MR. V. C. FAULKNER, responding to the toast, referred to the 25 per cent. cut in coal supplies to coke ovens, and said that this must automatically mean a 25 per cent. reduction in output since it required a ton of coke to make a ton of pig-iron. There was to be a 25 per cent. cut in coke supplied to foundries, and he was wondering how these cuts would correspond! He also mentioned the high sulphur content of foundry coke, which had been a serious matter, and asked what the position was to be in the future.

The CHAIRMAN, remarking that the best thing to do would be to pass these problems on to Mr. Arnold Carr, extended a special welcome to him, and said that the officers and members of the London Branch, knowing something of the splendid service Mr. Carr had rendered to the Association in general, and to the London Branch in particular, felt that the time was opportune to give some tangible recognition of those services during the past eight years. When the idea was put forward, everyone in the London Branch immediately contributed, and when the history of the Association came to be written, it would be found that no man had worked so hard for so many for so long, and expected nothing in return.

Mr. Carr took the leading part in the formation of the Association in 1939. In the early days, the idea was to have an Association to cover London and the outer suburbs, but Mr. Carr, with a wider vision, urged the need for an Association to cover the whole country. They were wise in accepting his suggestions, for they now had an Association whose influence covered Great Britain. This had been brought about by the wise counsel and sound judgment which Mr. Carr had always given, and it must be a satisfaction to him that there had been co-operation from every Branch of the Association. Mr. Carr had won, and retained in a wonderful manner, the confidence and esteem of every member. Evidence of that was to be seen in the fact that not only was Mr. Carr elected Chairman when the Association was formed in 1939, but he had been unanimously re-elected every year since.

The Association had only just got into its stride in 1939 when war broke out, and war-time problems came thick and fast. Mr. Carr steered the ship into calm waters. The value of his work was exemplified in the happy relations between the Association and every branch of the foundry coke trade. He had



MR. R. W. CAUSEBROOK

Secretary London Foundry Coke Merchants' Association

brought to bear on every problem a clear insight, based on practical knowledge of the trade, and a judgment that speedily found a way to deal with every problem, whether it related to margins or allocations. On the question of margins, Mr. Carr had always presented the case for the merchants in a most convincing manner both to producers and the various Ministries concerned. Although he had not always been successful in accomplishing what he set out to do, members of the Association were most grateful for what he had accomplished on their behalf.

It was, therefore, said the Chairman, a real pleasure to ask Mr. Carr to accept an inscribed cigarette box as a small token of the appreciation and regard of the members of the London Branch.

MR. ARNOLD CARR said he was genuinely surprised at what had taken place, because even when it had

been possible to fix a date for the luncheon, owing to his absence abroad, he could not ascertain from anybody what it was all about. The gift, and the sentiments which accomplished it, was something he could not fail to appreciate very highly.

Speaking of the Association, he said a number of people were concerned with its founding, although it was true that when he attended the inaugural meeting he had suggested that instead of looking at this matter locally it should be looked at nationally. That was done, and it might even be that there might be an international outlook in the future. However, for the moment it was being looked at nationally, and it gave him a great deal of pleasure to know that he had had something to do with the formation of the Association on these lines. Much work had been done, but a great deal remained to be done. It was a great satisfaction to merchants to know they had the backing of the Association in all their problems, and certainly no one could have had a stronger backing than he had received from members. He appreciated that far more than he could put into words, and assured them that he would never "lead them up the garden path." He would retire first. Speaking of the reference by Mr. Faulkner to sulphur in coke, he said there was a time when users were constantly complaining of the sulphur content, but now these complaints had ceased, and the users were only too pleased to get the coke! As a matter of fact, he believed the future would show there would be more sulphur in coke, but no doubt the foundry industry would face up to and overcome the difficulties.

It was a good thing that the Association was formed in 1939. Previously the claims of foundry coke merchants could not be put forward to whatever the powers that be, and now that nationalisation of the coal and fuel industries had taken place, he wondered where they would be without the Association. However, they had one great satisfaction, in that MR. LESLIE O'CONNOR had gone to the National Coal Board, and he took with him a full and complete knowledge of the work of the Association and of foundry coke merchants.

As to the future, it was not possible to prophesy, for everything was in the melting pot, but he was satisfied in his own mind that the work done by the Association was such as could not be done by any Coal Board or national institution. Therefore, he believed the Association would maintain its position and give service which would be of great value to the foundry industry and the country generally.

MR. R. CAUSEBROOKE (Hon. Secretary, London Branch) proposed the toast of the Chairman.

The CHAIRMAN, acknowledging, said the merchants gave an assurance to the authorities during the war that every foundry would be supplied with coke, and it was a fact that not a single foundry served by members of the London Branch of the Association had been let down in any way whatever, not even during the "blitz" days—that was a fine achievement.

CORRESPONDENCE

[We accept no responsibility for the statements made or the opinions expressed by our correspondents.]

To the Editor of the FOUNDRY TRADE JOURNAL.

MOISTURE TESTING

SIR,—In your issue of January 2 you published a letter on the article entitled "A Simple Rapid Method for Determining the Moisture Content of Sand." I agree with your correspondent who remarks that accuracy by the electrical method can only be obtained if the resistivity of the added water is constant. This, however, is not the only difficulty. I have tried a similar method with aluminium moulding sands, and obtained a very low reading (4 per cent.) when taken on wet sand (8 per cent. actual moisture content) in the sand store, and a high (8 per cent.) reading when measuring the floor sand in the foundry, which is much drier at 5.5 per cent. moisture content, as recorded by the "Speedy" moisture tester. The cause of this discrepancy appears to be due to the electrical resistance being lowered by the addition of small quantities of Southport sand, which contains salt. As the quantity of this salt and also the moisture content can vary the method is very difficult to apply.

The moisture in the sand used in the magnesium foundry appeared almost impossible to measure by this means, for the chief reason that the sand between the plates of the instrument made a very good electrolyte, and produced a cell with an E.M.F. of about 50 M. volts. This varied continually, possibly due to polarisation of the plates, the effect almost certainly being caused by the ammonium bifluoride inhibitors added to the sand. As the resistance of the sand as measured on a bridge varied by a hundred ohms or more within a few seconds, this method of moisture determination as applied to magnesium moulding sands does not seem practical.

Yours, etc.,
P. M. BAILEY.

High Duty Alloy Ltd.
Buckingham Avenue, Trading Estate,
Slough, Bucks.
January 21, 1947.

INSTITUTE OF BRITISH FOUNDRYMEN

(*Continued from page* 109.)

THIRD LIST

As Subscribing Firm Members

A. Ballantine & Sons, Limited, Bo'ness, ironfounders, (representative, J. B. Ballantine); Raj Engineering Works, Delhi, India, ironfounders (representative, K. C. Gupta).

As Members

J. F. Jones, ironfounder; A. Mackirdy, agent and metallurgist; J. Currie,* general manager.

*Transferred from associate member.

As Associate Members

A. Biddulph, metallurgical ceramist; T. D. Bruce-Jones, special trainee; J. Duncan, iron moulder; M. J. Hayden, foundry foreman; J. A. Jones, pattern-maker.

NOTES FROM THE BRANCHES

EAST ANGLIAN SECTION.—At a meeting held at Ipswich on January 9, over which Mr. A. F. Hammond presided, Mr. F. E. Tibbenham, past-president of the section, presented an address on "A Short Visit to the U.S.A.," during which some 100 lantern slides were shown. These covered visits made to various foundries during the tour and also general views and scenes of the cities and centres of interest visited. A lively and interesting discussion followed.

Mr. R. F. Coates proposed, and the chairman seconded, a vote of thanks, which the members warmly endorsed.

The secretary, Mr. A. N. Sumner, announced that the next meeting would be held on February 13 at (in view of the change in the district working hours) the altered time of 7.15 p.m. in the Library lecture hall, when Mr. J. Blakiston would present the sub-committee report on "Control Tests for Grey Cast Iron."

NEWCASTLE-UPON-TYNE. — A well-attended meeting on January 19 listened to Mr. W. Y. Buchanan when he read his Paper on "Sandslinger Moulding Practice," which he had previously presented at the annual meeting of the Institute at Manchester in 1944. The lecturer interspersed his reading with a number of slides on the screen showing Sandslingers in operation, together with diagrams and curves illustrating the comparative hardness of moulds obtained by hand ramming, jolting, squeezing and Sandslinging. Mr. Buchanan did not add much to his original Paper, but in general his remarks on the use of the Sandslinger showed that he was convinced of the great advantages that the employment of this machine conferred on the foundryman.

During the discussion, numerous questions were put to Mr. Buchanan who answered them seriatim. These may be summarised as follows:

He agreed that hand ramming, jolting and squeezing were useful in certain cases of peculiarities in patterns, but, as a general proposition Sandslinging was the most advantageous method of mould building. In his own experience a medium size Sandslinger was used for all sizes of work, and he protested against the idea that the machine was only suitable for repetition work and within a limited range. The action of the sand striking the pattern with a high velocity was no detriment. As a cautionary measure, however, he advised, and in fact it was necessary, that loose pieces should be firmly secured. He had never seen extra wear and tear on patterns through the use of the Sandslinger.

The flowability of green sand as used in the Sandslinger was assured by the moisture content, say, 6 to 7 per cent., this amount rendering it sufficiently plastic and giving an easy flow. It did not affect the ramming head, but only the feeding apparatus. He had had no experience with cement in the Sandslinger. The ramming up of heavy moulds could certainly be done with the machine, as it was in reality a filling

(*Continued at foot of next column.*)

FORTHCOMING EVENTS

(Secretaries are invited to send in notices of meetings, etc., for inclusion in this column.)

JANUARY 31.

Royal Statistical Society—Industrial Applications section (London group) :—"Control Charts Applied to Sales Data," by Dr. B. P. Dudding. At E.L.M.A Lighting Service Bureau, 2, Savoy Hill, London, W.C.2, at 6 p.m.

FEBRUARY 1.

Institute of Physics (South Wales branch) :—"Some Applications of Calculating Machines," by Dr. L. J. Comrie. At University College, Cardiff, at 3 p.m.

FEBRUARY 3.

Society of Chemical Industry :—"Refrigeration—Development and Application," by Dr. E. Griffiths. At the Chemical Society's Rooms, Burlington House, Piccadilly, London, W.1.

FEBRUARY 4.

Institution of Chemical Engineers (London branch) :—"Particle Size Analysis." At the Geological Society, Burlington House, Piccadilly, London, W.1, at 5.30 p.m.

FEBRUARY 7.

Manchester Association of Engineers :—"Mining Equipment," by E. F. Owen. At the Engineers' Club, Albert Square, Manchester, at 6.45 p.m.

Scottish Engineering Students' Association :—"The Training of Engineers," by J. E. Sansom. At the Heriot-Watt College, Edinburgh, at 7.15 p.m.

Institute of British Foundrymen

FEBRUARY 4.

Slough section :—"The Practical Aspect of Centrifugal Casting," by Dr. L. Northcott. At the Lecture Theatre, High Duty Alloys Limited, Trading Estate, Slough, at 7 p.m.

(*Continued from previous column.*)

machine. Facing sand was frequently used in casting and could be used with the Sandslinger, but the machine already used prepared sand and to introduce another involved two sources of supply and increased cost. It was true that a labourer could manipulate the Sandslinger, but he must not do any moulding, and it was therefore cheaper to have the machine manned by moulders.

He appreciated that there was opposition among some foundrymen to the use of moulding machinery, though happily diminishing, and admitted there was some truth in the remark of a member who cited a case where the ironfounders in a works refused to operate a Sandslinger: this was handed over to the steelfounders who worked it with satisfactory results, so much so that the ironfounders begged for it to be returned to them—this without success.

He advised managers to encourage everyone in the foundry to see new machinery affecting their trade, particularly with the object of eliminating heavy work and strain. This was the road to progress and the attainment of a higher status of the foundry industry.

TAXATION POLICY AND PRODUCTION INCENTIVE

F.B.I. RECOMMENDATIONS TO CHANCELLOR

A lengthy statement on taxation policy issued by the Federation of British Industries and forwarded to the Chancellor of the Exchequer with the request that he receive a joint deputation of the F.B.I. and the Association of British Chambers of Commerce, stresses the point that, at all levels, high taxation is weakening incentives to production. The following recommendations are made in connection with the forthcoming Budget:—(1) That taxation should be substantially reduced even at the cost of a temporarily unbalanced Budget; (2) that the reduction should be concentrated on direct taxation, but should, above all, be designed to encourage production; (3) that no special tax should be imposed on business profits, but, on the contrary, the profits tax (N.D.C.) should be repealed; (4) that there should be a special inquiry into the efficiency of the national expenditure.

Greater production would make the task of achieving a balanced Budget easier, but high taxation is proving a hindrance by weakening incentives to production, the statement points out. Production is a matter of human effort and efficient organisation allied with equipment. Industry in general needs re-equipment, but at the moment this is not available on a substantial scale. This is true both for the machine-producing industries and for the industries that use the machines. The leeway left by a long war has to be made up at the machine-producing end before it can be overtaken at the using end. Some time must inevitably elapse therefore before re-equipment at the using end can be completed. Greater production with existing equipment must then be the immediate aim.

Effects of High Taxation

High taxation has weakened incentive to greater effort at all income levels, not least to the wage-earner. It is common knowledge that many wage-earners do not give the extra effort, or put in the extra time of which they are capable because of the tax imposed on their extra earnings. At the higher level of salaries there is unwillingness to assume added responsibilities having regard to the small net additional reward. It is true that the lack of goods on which to spend money is one of the causes of unwillingness to earn more, but that in turn can only be cured by greater production. It is therefore necessary to devise means for sharpening incentives.

The F.B.I. suggests that for this purpose a substantial reduction in the amount levied by direct taxation should be made. This should include (*a*) a reduction in the standard rate of income tax, (*b*) increased allowances affecting the individual, and (*c*) the higher rates of income tax should not be increased.

It is desirable that the maximum number should contribute something to the nation's finances. That contribution need not necessarily be by way of direct taxation. In practice, contribution by direct taxation is having these most undesirable effects of killing incentive. The Federation therefore recommends that the personal allowance should be increased with the objects of removing from numbers of the population any liability to income tax.

On the question of the profits tax, the Federation states that it is generally admitted that to continue E.P.T. into peacetime would have been undesirable. The principle of basing liability on the excess over a standard is restrictive of enterprise and production and results in unequal incidence of tax. There is great need for modernisation in industry, but for the moment this can only be carried out to a limited extent. When it becomes possible to undertake this re-equipment, and to carry stocks at the required level, industry will have great need of capital. Thus the prospective capital needs of industry, both for fixed and working capital, are much greater than before the war. Industry should, therefore, be encouraged to put as much to reserve as possible. The high standard rate of income tax, plus the special business tax now known as profits tax, limits the amount available to be put to reserve.

The Chancellor of the Exchequer hinted at the possibility of a special tax on business. Such a special tax, either a new tax or an addition to the rate of profits tax, is most undesirable at the present time, and would largely offset the good done by the abolition of E.P.T.

NATION'S DEPENDENCE ON HIGHER PRODUCTION

The restoration of standards of living in this country, which he described as Britain's short-term problem, depended on higher production being achieved during the currency of the United States and Canadian loans, and while the existing seller's market lasted, said Sir Charles Lidbury when he gave the first of a series of lectures on economic reconstruction at the Royal Society of Arts. Sir Charles, who is chief general manager and a director of the Westminster Bank, Limited, emphasised the fundamental importance to this country of foreign trade and drew attention to the decline in our position as an exporting country. He suggested that even in 1939 a problem existed which would have been sufficiently grave had the peace been preserved. It was that we were not paying our way.

The seller's market would not continue, but as it diminished we must hope for an increase in the total volume of world trade, he said. Vital as the export drive undoubtedly was, and right as we were in concentrating our immediate attention upon it, we must not make the error of thinking that all we needed was a short spurt to recover our position in the race, and that thereafter we could carry on at a steady trot. The testing time would come later when we should have to maintain our position in the face of renewed competition. The long-term problem was related to whether multilateral trade was the best basis of trading for this country.

SMITH'S DOCK COMPANY, LIMITED, are planning to make films of shipbuilding as a means of helping the training of their apprentices.

IMPORTS AND EXPORTS OF IRON AND STEEL

BOARD OF TRADE RETURNS FOR 1946

The following tables, based on Board of Trade returns, give figures of imports and exports of iron and steel in December and in the whole of 1946. Figures for the whole of 1938 are given for purposes of comparison.

Total Exports of Iron and Steel

Destination.	December, 1946.	Twelve months ended December.	Whole of 1938.
	Tons.	Tons.	Tons.
Eire	5,388	63,635	55,719
Channel Islands	355	5,188	7,417
Palestine	4,805	90,666	8,071
British West Africa	3,996	44,572	49,742
Union of South Africa	10,738	216,254	231,086
Northern Rhodesia	40	2,748	20,574
Southern Rhodesia	1,668	42,434	36,212
British East Africa	1,776	28,065	25,931
British India	7,031	79,213	158,679
Burma	3,360	17,577	18,512
British Malaya	2,536	38,963	66,584
Ceylon	475	13,239	26,030
Hong Kong	1,414	17,775	23,594
Australia	4,516	35,328	170,903
New Zealand	3,976	44,595	131,883
Canada	799	10,143	85,409
British West India Islands	1,548	28,920	44,250
Anglo-Egyptian Sudan	2,063	16,445	8,290
Other British Countries	1,567	28,725	21,918
Soviet Union	491	1,732	4,349
Finland	3,433	51,176	17,607
Norway	3,210	68,696	20,273
Iceland	1,151	12,188	658
Denmark	8,530	196,430	87,255
Poland	11	13,396	2,487
Netherlands	10,513	152,106	51,559
Dutch East Indies	2,382	10,739	27,307
Dutch West India Islands	1,035	11,150	2,464
Belgium	1,688	30,486	20,325
France	3,189	64,580	13,387
Portugal	1,691	42,169	7,713
Portuguese East Africa	685	5,872	14,220
Spain	228	8,887	7,763
Italy	321	7,654	5,139
Greece	1,165	21,547	1,752
Turkey	2,145	13,139	13,757
Egypt	1,917	83,402	34,409
Iraq	8,648	62,362	25,740
Iran	5,016	87,043	110,380
China	4,782	27,899	22,130
U.S.A.	2,740	4,298	2,187
Venezuela	2,839	37,767	4,675
Ecuador	208	4,493	1,592
Chile	925	6,942	6,293
Brazil	4,175	45,845	16,990
Uruguay	1,583	13,115	7,587
Argentine	8,899	86,029	79,357
Other Foreign Countries	16,951	249,653	115,716
Total	158,602	2,245,280	1,915,875

THE FEDERATION OF BRITISH INDUSTRIES, in a statement on the Government's proposals to nationalise gas and electricity services, points out that it can see no evidence to suggest that this course will bring any advantage to industrial consumers. The Federation, moreover, is apprehensive that increases in cost and lower standards of service to the industrial consumer will result from the establishment of vast administrative units of the pattern now becoming apparent.

Total Imports of Iron and Steel

From	December, 1946.	Twelve months ended December.	Whole of 1938.
	Tons.	Tons.	Tons.
British India	243	14,836	155,633
Australia	2,199	107,458	35
Canada	2,500	98,391	117,374
Other British Countries	24	2,616	5,598
Sweden	1,449	5,366	89,795
Norway	1,685	15,457	33,774
Belgium	1,434	13,448	273,680
Luxemburg	543	1,272	58,601
France	48	502	257,347
U.S.A.	15,091	236,933	200,692
Other Foreign Countries	6	3,254	151,741
Total	25,222	499,533	1,344,270
Iron ore and concentrates—			
Manganiferous	—	112,766	62,282
Other sorts	532,263	6,487,722	5,101,867
Iron and steel, scrap and waste, fit only for the recovery of metal	12,746	443,195	632,203

Exports of Iron and Steel By Products

Product.	December, 1946.	Twelve months ended December.	Whole of 1938.
	Tons.	Tons.	Tons.
Pig-iron	8,198	32,111	93,941
Ferro-alloys, etc.—			
Ferro-tungsten	17	277	517
Spiegeleisen and ferro-manganese	4,308	58,636	5,197
All other descriptions*	50	1,003	1,048
Ingots, blooms, billets and slabs	395	4,598	9,743
Iron bars and rods	941	10,031	3,197
Sheet and tinplate bars	—	142	12,380
Wire rods and bright steel bars	3,382	52,990	9,769
Other steel bars and rods	15,479	241,874	102,003
Special steel	1,385	17,577	4,933
Angles, shapes and sections	6,321	130,251	67,405
Castings and forgings	503	3,405	1,618
Girders, beams, joists and pillars	3,190	61,498	33,471
Hoop and strip	2,518	68,884	37,377
Plates, ⅛ in. thick and over	15,179	284,881	130,959
Black plates	697	21,944	14,538
Black sheets	1,620	42,884	63,513
Galvanised sheets	3,941	35,041	146,933
Tinplates	9,788	112,595	319,308
Tinned sheets	207	2,692	1,410
Terneplates	67	1,892	4,325
Decorated tinplates	16	546	4,368
Cast-iron pipes, up to 6-in. dia.	4,172	45,933	48,928
Do., over 6-in. dia.	3,379	35,288	42,963
Wrought-iron tubes	25,838	275,117	219,973
Steel rails	6,428	150,242	106,000
Sleepers and fishplates	3,030	92,015	25,382
Other railway material	2,616	26,774	26,771
Wire	4,828	73,805	55,181
Wire manufactures	3,579	38,807	29,488
Nails, tacks, etc.	710	8,655	3,806
Rivets and washers	705	8,777	8,536
Wood screws	360	5,157	2,512
Bolts, nuts, and metal screws	1,819	24,529	17,573
Stoves, grates, etc.	534	6,307	9,150
Sanitary cisterns	49	1,018	2,812
Fencing material	245	4,390	5,130
Anchors, etc.	694	6,361	6,336
Chains	738	9,385	6,293
Springs	463	5,518	3,931
Hollow-ware	7,900	79,491	10,702
All other manufactures	12,313	161,899	216,455
Total	158,602	2,245,280	1,915,875

* The figures for 1946 are not completely comparable with those for earlier years.

NEW TRADE MARKS

The following applications to register trade marks appear in the "Trade Marks Journal":—

"IMO"—Pumps, hydraulic machinery, hydraulic transmission gear, valves, etc. AKTIEBOLAGET IMO-INDUSTRI, c/o Boult, Wade & Tennant, 112, Hatton Garden, London, E.C.1.

"EQULIFT"—Metal casters, furniture fittings, constructional framework, door and window fittings, etc. EDWARD VICTOR MANSER, 35, Brunswick Gardens. Tomswood Hill, Ilford.

"HORSESHOE BRAND" AND HORSESHOE DEVICE—Non-electric cables, wire, pipes and tubes, rivets, etc. BURLEYS OF UXBRIDGE, LIMITED, Apex Works, Oxford Road, Denham, Uxbridge.

"AMPCO-TRODE"—Arc-welding electrodes principally of copper-base alloys. AMPCO METAL INC., c/o Stevens, Langner, Parry & Rollinson, 5-9, Quality Court, Chancery Lane, London, W.C.2.

"BATTERSEA"—Crucibles, and refractory, semi-refractory, and part-refractory apparatus and appliances, etc. MORGAN CRUCIBLE COMPANY, LIMITED, Battersea Church Road, London, S.W.11.

DIAMOND-SHAPED DEVICE—Compressor stop valves. BRITISH THERMOSTAT COMPANY, LIMITED, Teddington Works, Windmill Road, Sunbury-on-Thames, Middx, and PEGLERS, LIMITED, Belmont Works, Doncaster.

"MONITOR"—Flow meters; automatic alarm and safety devices for use in connection with power plant and machinery. "MONITOR" PATENT SAFETY DEVICES, LIMITED, "Monitor Works," Kings Road, Wallsend-on-Tyne.

"METCOLIZED"—Carburising boxes, grate bars, furnace doors, baffle plates for furnaces and annealing boxes. METALIZING ENGINEERING COMPANY, INC., c/o Marks & Clerk, 57-58, Lincoln's Inn Fields, London, W.C.2.

"CANALAC"—Gas-burning, steam-heated, electric or solid-fuel burning installations and apparatus for lighting, heating, steam generating, etc., boilers, filters, etc. CANNON IRON FOUNDRIES, LIMITED, Deepfields, near Bilston, Staffs.

REORGANISATION OF IRISH STEEL, LIMITED

Following the reorganisation of the works of Irish Steel, Limited, Haulbowline, Co. Cork, and the appointment of Mr. Vincent Crowley as receiver on behalf of the debenture holders, it is expected that the company will soon be re-established on a new basis. Manufacturing work is proceeding at the steel plant, and about 300 men are now in full employment there. Considerable quantities of scrap steel are being manufactured into merchant steel.

It is understood that during the emergency the company found the difficulties it encountered beyond its capacity to overcome economically. There is a trade loan guarantee which is secured by debentures. There are also other substantial debenture holders. It is expected that a new company will be formed shortly.

MR. BEVAN'S APPEAL TO WORKERS

In spite of what had been stated, the Government intended to carry out their promise to nationalise steel, said Mr. Aneurin Bevan, Minister of Health, at Blackburn last week. He told a labour demonstration that greater production was demanded from the British people. We had to export about 150 per cent. more than before the war. We should not be able to accomplish our end unless we could obtain from the people greater production than they had ever achieved in their history, he said. This was not the time, speaking quite bluntly, to be pushing schemes for shorter hours. It was not the time to be throwing spanners into the economic mechanism, but the time to put goods into the shops that were equivalent to the money in our pockets.

Mr. Bevan said the Government appealed to working people for a greater production effort. Insurance and health schemes, better housing, higher standards of living—all these depended on production. There had been disputes and stoppages. "Let me ask my friends in the trade unions to remember this: If you use the liberties you have frivolously you will endanger them. When you have to consider demands in the workshop use the machinery of arbitration and conciliation, but for heaven's sake keep the wheels turning."

EFFECT OF FUEL CUT ON STEEL OUTPUT

The difficult situation created by the cut in the allocation of fuel to the steel industry, which must inevitably affect output, was discussed by the Executive Committee of the British Iron and Steel Federation at a meeting in London last week.

Reactions of steel producers on the North-East Coast to the 25 per cent. cut in the coal allocations to the steel industry, are epitomised in a statement issued by Dorman, Long & Company, Limited. "Everything," they state, "will be done to minimise the effect of the fuel scarcity, but it will be impossible to avoid the standing idle of certain plant. . . . Dorman, Long have full order books with every prospect of full employment for a long time ahead if coal supplies and adequate transport are available, but the situation is made even more difficult because the critical transport situation has caused serious interference with the carriage of ores from the Midlands to Tees-side. The ore wagons are being used to transport coal and the curtailment of deliveries of Midland ores will adversely affect iron production at the blast furnaces."

THE PORT OF LONDON AUTHORITY has placed a contract with I.T.D., Limited (Industry & Trade Development), for the supply of their fork lift trucks, which were introduced into this country during Lease-Lend. Known as the "Stacatrucs," the fork lift trucks were widely used by the American Forces in handling their war materials and are now standard equipment for the British Forces.

PERSONAL

MR. H. CHISHOLM has resigned from the board of the Metal Box Company, Limited.

MR. W. O. MEADE-KING and MR. C. SELLECK have been elected to the board of English China Clays, Limited.

MR. W. B. JOHNSTONE has been appointed a director of Alexander Stephen & Sons, Limited, shipbuilders, etc., of Glasgow.

MR. J. BUCHANAN has joined the board of W. J. Yarwood & Sons (1938), Limited, shipbuilders, ironfounders, etc., of Northwich, Ches.

MR. G. R. PARKER has been appointed a director of Fairbairn Lawson Combe Barbour, Limited, textile and general engineers, ironfounders, etc., of Leeds.

MR. LINDSAY GALLON, secretary of the Birtley Company, Limited, for 19 years, has been appointed a director. He has been with the company for 27 years.

MR. J. W. WARRINGTON, chief engineer, has been appointed a director of Sterling Industries, Limited. He is managing director of various of the company's subsidiaries.

SIR ARCHIBALD JAMIESON, chairman of Vickers, Limited, has left for Australia to make personal contact with the recently acquired interests of Vickers-Armstrongs, Limited.

MR. R. P. MIDDLETON has been appointed to the board of F. H. Wheeler (Sheffield), Limited, electrical engineers and contractors. MR. J. S. SMITH has been appointed chief engineer of the company.

MR. WILFRED B. LANE has been elected a director of Wright, Bindley & Gell, Limited, manufacturers of metal pressings, mild-steel wire, etc., of Birmingham, in place of MAJOR A. WRIGHT, who has retired.

MR. W. P. HECKLES, naval architect of John Readhead & Sons, Limited, South Shields, has been presented with an inscribed silver tankard to mark his award of the M.B.E. for his services to shipbuilding during the war.

MR. N. NICHOLSON has been appointed chairman and MR. JOHN W. HABERSHON and MR. R. P. R. HABERSHON have been appointed joint managing directors of J. J. Habershon & Sons, Limited, steel rollers and founders, etc., of Rotherham.

MR. V. WATLINGTON was entertained at dinner at the Savoy Hotel, London, on January 16, by the vice-presidents and Council of the British Electrical and Allied Manufacturers' Association on the occasion of his retirement from the directorship of the Association.

MR. E. SUTTON, who has retired after 63 years' service with Bayliss, Jones & Bayliss, Limited, iron and steel rollers, ironfounders, etc., of Wolverhampton, has been presented with a cheque by the directors and members of the staff. He has been test-house superintendent for the past 43 years.

LT.-COL. H. RIGGALL has been elected for a second year as president of the British Engineers' Association. He is a director of Ruston & Hornsby, Limited. MR. C. K. F. HAGUE, managing director of Babcock & Wilcox, Limited, and MR. K. FRASER, joint managing director of W. J. Fraser & Company, Limited, have been elected vice-presidents.

MR. MARTIN PRICE, who has retired from service after 40 years as secretary of the South Wales Institute of Engineers, was enrolled as an honorary member at the recent annual meeting of the Institute. MR. E. S. DOUTHWAITE, who for the past 16 years has been assistant secretary of the Institute, has been appointed secretary in succession to Mr. Price.

MR. STANLEY ROBSON has been appointed consultant to the Imperial Smelting Corporation, Limited, the Zinc Corporation, Limited, and the New Broken Hill Consolidated, Limited. In order that he may be free to take up this new appointment, the board of the Imperial Smelting Corporation has agreed to accept his resignation as a director of the company.

MR. F. COUSANS, of Catton & Company, Limited, Leeds, is to present this year's exchange Paper of the Institute of British Foundrymen to the American Foundrymen's Association. His subject will be "Side-blown Converter Practice." The Paper to be read before the Association Technique de Fonderie is to be given by MR. A. P. WRIGHT, of T. M. Birkett & Sons, Limited, Hanley, who will take as his subject "Cast Aluminium Bronze Tubes."

DR. HUGH FORD is relinquishing his position as head of the Mechanical Working Division of the British Iron and Steel Research Association at the end of the month, to become technical director of the Paterson Engineering Company, Limited. He started his industrial career as an apprentice in the locomotive works of the Great Western Railway Company, obtaining the Whitworth Scholarship before going to the City and Guilds of London Institute of the Imperial College. His work there, under Prof. C. H. Lander, on heat transfer and fluid-flow problems, gained for him the degree of Doctor of Philosophy. In September, 1939, he joined I.C.I. (Alkali), Limited, as research and development engineer, working at Northwich on the long-chain polymers, polythenes. When Dr. L. R. Underwood left the Iron and Steel Industrial Research Council to join the staff of W. H. A. Robertson & Company, Limited, at Bedford, Dr. Ford took over the work on rolling-mill research, and arranged the development of the experimental rolling mill at the University of Sheffield. When the British Iron and Steel Research Association was formed early in 1945, he became head of the Mechanical Working Division, and organised research on rolling-mill practice, wire-drawing problems, and set up the laboratory at Swansea for work on coatings for iron and steel.

THE ENTIRE SHARE CAPITAL of the Kelsey-Hayes Wheel Company, Limited, Dagenham, Essex, which was exclusively owned by the Kelsey-Hayes Wheel Company of America, has been acquired by Ford Motor Company, Limited, under whose directions the activities of the company will be conducted. The bulk of the output of the Kelsey-Hayes Wheel Company since its incorporation has been sold to the Ford Company.

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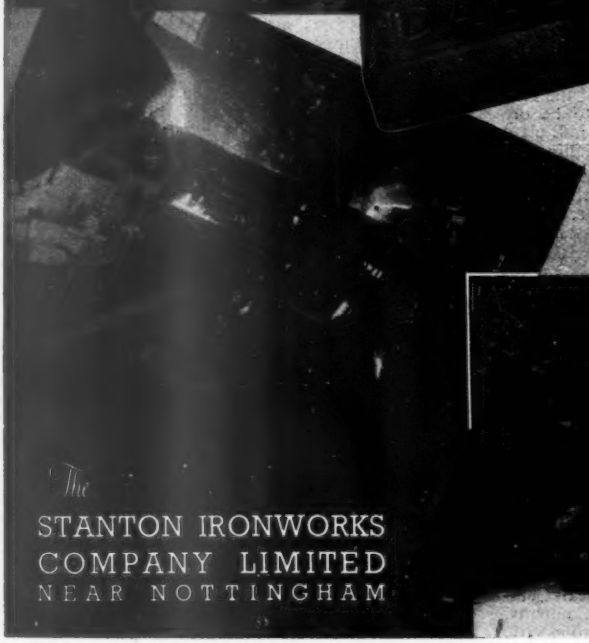

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1. Core being lowered into mould
2. Pouring the metal
3. Finished casting in transit

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NEWS IN BRIEF

THE CAPITAL OF Joseph Sankey & Sons, Limited, a subsidiary of John Lysaght, Limited, has been increased to £2,500,000 by the creation of 1,500,000 ordinary £1 shares.

THE BRIGHTSIDE FOUNDRY & ENGINEERING COMPANY, LIMITED, has acquired the share capital of Buckley & Taylor, Limited, engineers and ironfounders, of Oldham.

THE ADDRESS OF THE Birmingham office and service depot of Wild-Barfield Electric Furnaces, Limited, is now 21, Steelhouse Lane, Birmingham, 4 (telephone: Central 6372).

MR. R. F. BENDALL (with a Committee of Inspection), 48-50, Exchange Buildings, New Street, Birmingham, has been appointed liquidator of the Greenhill Engineering Company, Limited.

THE DONCASTER ENGINEERING SOCIETY is holding its second exhibition of the "Products of Engineering Made in Doncaster" from February 15-22, at the Doncaster Technical College Hall.

CLYDE SHIPYARDS launched 103 vessels, aggregating 247,935 tons, in 1946, as compared with 75 vessels of 258,329 tons in 1945. Contracts for about 150 ships are on hand for 1947 and are estimated at £73,000,000.

THE ADDRESS OF the Newcastle-upon-Tyne branch office of the Brightside Foundry & Engineering Company, Limited, is now Lambton House, Lambton Road (telephone: Newcastle-upon-Tyne 23395/6).

THE WHOLE OF THE PLANT and equipment of the Hull Forge Iron & Steel Company, Limited, is to be dismantled by Thos. W. Ward, Limited. Rolling-mill plant and auxiliary machine tools are among the equipment.

THE ADDRESS OF the Central Office and the office of the British National Committee of the World Power Conference is now 201-202, Grand Buildings, Trafalgar Square, London, W.C.2 (telephone: Whitehall 3966).

STOCKTON-ON-TEES CORPORATION has accepted the tender of Ashmore, Benson, Pease & Company, Limited, for the dismantling of four purifiers at the gasworks and the installation of four new purifiers, at a cost of £43,420.

THE HEADQUARTERS OF the Aluminium Development Association are now at 33, Grosvenor Street, London, W.1. The change of address is due to the increased activities of the Association and the consequent expansion of the staff.

NOTICE No. 78 (Goods Chargeable with Purchase Tax), issued by the Commissioners of Customs and Excise, has been revised and copies of the new edition are being sent by local Collectors of Customs and Excise to all registered traders.

CONTRACTS WORTH NEARLY £2,000,000 have been placed with the Metropolitan-Vickers Electrical Company, Limited, and the English Electric Company, Limited, for generation plant for two hydro-electric power stations in Portugal.

APPLICATION IS TO be made for permission to deal on the Birmingham Stock Exchange in the whole of the issued capital of the Midland Bright Drawn Steel & Engineering Company, Limited. The capital consists of 1,000,000 shares of 1s. each.

A SALE OF GOVERNMENT surplus stores at the Ministry of Supply Disposal Transit Depot, Challow Station, Berks, will be held on February 5 and 6. Catalogues (6d. each) are obtainable from the auctioneers, Adkin, Belcher & Bowen, Market Place, Wantage.

C. A. PARSONS & COMPANY, LIMITED, Newcastle-upon-Tyne, have shipped to Durban a 40,000-kw. steam turbo-alternator for the Congella Power Station. The plant is the second of its kind built by the company for this station, while a third is under construction.

AN AGREEMENT has been made for the products of Brush Electrical Engineering Company, Limited, to be produced, under royalty, in South Africa. Signatories to the agreement are the Brush Company, its subsidiary, Brush (South Africa) and New Union Goldfields.

"NEW METALS FOR OLD" is the subject of the Edward Williams lecture to be given at the forthcoming Nottingham conference of the Institute of British Foundrymen by Sir Edward Appleton, F.R.S., secretary of the Department of Scientific and Industrial Research.

MINISTRY OF SUPPLY details of U.K. aluminium fabrication in October last show that the castings total of 3,957 tons was made up of:—Sand, 1,660 tons; gravity, 2,062 tons, and pressure, 235 tons. Magnesium fabrication included 91 tons of castings, other than bombs.

THE MINISTRY OF SUPPLY have announced that their recent statement concerning the sale of silicon metal should have read: "The Ministry will sell, as from January 1, silicon metal *of a minimum* of 97 per cent. purity at £97 per ton, delivered, irrespective of quantity.

THE MINISTRY OF SUPPLY'S first important sale of engineers' tools and equipment—mainly unused—is to be held at the Town Hall, Henley-on-Thames, on February 18 and 19. Information and catalogues (6d. each) are obtainable from Henry Butcher & Company, 73, Chancery Lane, London, W.C.2.

TWENTY-TWO MEMBERS of the 600 group of companies received long-service presentations at a recent ceremony. More than 125 employees, with an aggregate of some 3,500 years' service, have now been with the group for over 25 years. Those receiving presentations included Mr. A. S. Gill and Mr. C. E. G. Nye, both special directors of George Cohen, Sons & Company, Limited, parent concern of the group.

MR. J. A. MILNE, chairman of J. Samuel White & Company, Limited, in a statement circulated with the annual accounts, says that at their Somerton Works the changeover from the construction of aircraft components to steel domestic furniture has now been completed, and this new venture should prove very successful. In their shipbuilding yards over 70 per cent. of the work at present in hand is in respect of foreign orders.

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W. 77

OBITUARY

MR. PERCY A. W. PARKYN, managing director of Daniel Adamson & Company, Limited, Engineering Works, Dukinfield, died recently.

MR. PETER DE HAAN, European sales manager for the English Steel Corporation, Limited, has died suddenly. During the war he served in the R.A.F.

MR. GEORGE THOMAS LEE, who had represented Parsons Marine Steam Turbine Company, Limited, in many countries, has died at the age of 71 following a long illness.

MR. JOHN IANSON CREIGH, formerly superintendent of the Cyclops Works of the English Steel Corporation, Limited, died recently, at the age of 58. Illness compelled his retirement in 1945.

MR. ALFRED BONNIN, whose death occurred recently, was chairman of the Wallsend Slipway & Engineering Company, Limited, for 27 years. He was 79 years of age and a native of Adelaide, Australia.

SIR JOHN NIVEN, a partner in Andrew Weir & Company, iron, steel, metal and ore merchants, of Middlesbrough, has died at the age of 70. He was formerly Director of Commercial Services, Ministry of Shipping.

MR. TOM CHATWIN, head of the hand-welded and testing department of Samuel Woodhouse & Sons, Eagle Chain Works, Cradley Heath, has died at the age of 68. He was with the company well over 50 years.

MISS JANE ELIZABETH SQUIRES, who was for many years a director of Henry Squires & Sons, Limited, cabinet lock manufacturers and brassfounders, of New Invention, near Wolverhampton, has died in her 83rd year.

MR. HUGH FERGUSON, who was largely responsible for the consolidation of the gypsum industry in this country, died recently. He was chairman of H. Gill (Stampings), Limited, and a director of many other companies.

MR. CHARLES HENRY MCLINTOCK, partner in the firm of Thomson McLintock & Company, chartered accountants, and a director of British Ropes, Limited, died on January 15. He was at one time a director of Allan, Whyte & Company, Limited, rope makers, of Rutherglen, Glasgow. He later joined the board of British Ropes, Limited, and for a period was a joint managing director of that company. Mr. McLintock was also a director of the Ashley Engineering Company, Limited.

LORD SOUTHBOROUGH died on January 17 at the age of 76. He became chairman of Sir W. G. Armstrong, Whitworth & Company, Limited, in 1926, when the company was experiencing a difficult time. He was a director of the Chinese Engineering & Mining Company, Limited, the Westinghouse Brake & Signal Company, Limited, and other companies. Lord Southborough had a distinguished career in the Civil Service, which commenced in 1885, when he became an assistant law clerk to the Board of Trade. Some years later he was appointed secretary of the railway department, becoming permanent secretary in 1901. He was a member of the London Traffic Commission of 1903, the Canals and Waterways Commission of 1906, and the Commission on Ocean Freights and Shipping "Rings" of the same year. Lord Southborough became a Privy Councillor in 1912, the year in which he accepted the Civil Lordship of the Admiralty, being especially concerned with that department's contracts. When war broke out in 1914, he added to his duties the chairmanship of the War Trade Advisory Committee. In June, 1917, Mr. Lloyd George appointed him secretary of the Irish Convention. Among the number of appointments which Lord Southborough took up after leaving the Civil Service was that of a member of the Committee of the National Physical Laboratory.

CONTRACTS OPEN

Any date given is the latest on which tenders will be accepted. The address is that from which forms of tender may be obtained.

Bromley, February 19—Castings, etc., for the Borough Council. Mr. H. Cliffe, borough engineer, Municipal Offices, Bromley, Kent.

Cricklade and Wootton, February 14—Sinking and partial lining with mild-steel and cast-iron tubes of a borehole, for the Bassett Rural District Council. Mr. A. H. S. Waters, engineer, 25, Temple Row, Birmingham, 2. (Fee £3 3s., returnable.)

Crompton, February 15—Iron castings, etc., for the Urban District Council. Mr. J. E. Gledhill, engineer and surveyor, Town Hall, Shaw, Lancs.

Halifax, February 22—Castings (manhole covers, etc.), for the County Borough. Mr. G. Holden, borough engineer, Crossley Street, Halifax.

Haywards Heath, February 17—Provision and laying of approx. 2,366 yds. of 6-in. spun-iron water mains, etc., for the Mid-Sussex Joint Water Board. Mr. W. H. Ashmole, clerk and engineer, Boltro Road, Haywards Heath, Sussex. (Fee £2 2s., returnable.)

Kesteven, February 10—Traffic warning signs, gulley grates and frames, etc., for the County Council. The County Surveyor, County Offices, Sleaford, Lincolnshire.

Kidderminster, February 22—Cast-iron pipes, etc., for the Borough Council. The Borough Engineer and Surveyor's Office, 110, Mill Street, Kidderminster.

Manchester, February 8—Supply of approx. 5,600 yds. of 36-in. dia. water pipes, etc., for the Corporation Waterworks. The Secretary, Waterworks Offices, Town Hall, Manchester, 2.

Swansea, February 10—(1) Cast-iron pipes and special and/or spun-iron pipes; (2) spun-iron pipes and cast-iron specials—concrete lined; (4) waterworks appliances, including valves, hydrants, etc.; (5) water meters, for the Town Council. The Borough Water Engineer and Manager, Guildhall, Swansea.

Wokingham—Construction of approx. 8 miles of 7-in. to 12-in. dia. sewers, two pumping stations and sewage-disposal works, etc., for the Rural District Council. Howard Humphreys & Sons, consulting engineers, 17, Victoria Street, Westminster, London, S.W.1. (Fee £10 10s., returnable.)

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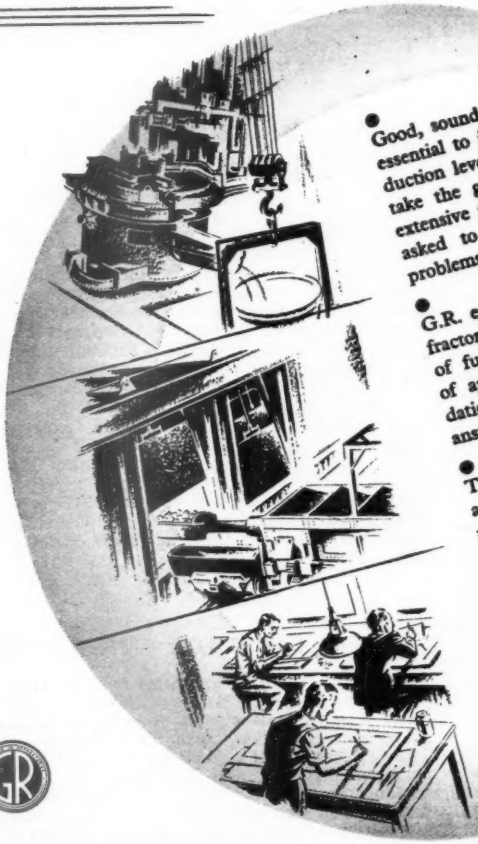

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Raw Material Markets

IRON AND STEEL

Every section of the iron and steel industry has this week felt the repercussions of the cut in fuel supplies. This fact discounted—it cannot be ignored—the light foundries are able to carry on with their present allocations of No. 3 pig-iron, but the expansion of activity in other branches of the foundry trade can only be sustained by more generous supplies of hematite and low- and medium-phosphorus iron than are at present available. Refined-iron makers, too, have all the orders they can cope with at present, and the steep rise in the price of ferro-manganese announced recently has not visibly affected the demand.

Light and medium scrap is wanted for the light foundries in large quantities. There continue to be delays in despatching supplies of coke, due to the wagon shortage and to railway embargoes. Delivery periods for ganister, limestone, firebricks, etc., are reasonable.

Moderate tonnages of billets are still being imported, and re-rollers are also using electrically melted steel, defectives, crops and discard material. By these expedients the mills are kept in regular operation, and outputs of small bars, light sections, and strip command a brisk sale. The sheet mills are now relying almost wholly upon home-produced bars and slabs, and are meeting their obligations to authorised users. There are, of course, many prospective buyers who are unable to obtain allocations, and they will certainly have to wait many months before their claims can receive consideration.

Clearances of finished steel products have been on a rather better scale, but there is still a lot of material awaiting delivery. However, the curtailment of exports should exercise a favourable effect on the flow of plates, joists and sections, which are wanted by a wide range of home consumers. Collieries have already ordered their full quotas of steel arches, props, roofing bars, etc., for this period, and rail and wire mills are turning out maximum tonnages without making any impression on their forward bookings.

NON-FERROUS METALS

The Ministry of Supply announces more details of the allocations of tin metal made by the Combined Tin Committee in Washington. At a recent meeting in Washington, the Committee recommended that, in view of statistical uncertainties regarding the supply position, but having regard to the need to keep supplies moving, only interim allocations of tin metal for the first half of 1947 should be made at present, amounting to approximately 50 per cent. of the allocations recommended for the last half of 1946. These interim allocations (which do not include domestic production) are not to be regarded as constituting a pattern for final allocations. At a later date substantial additional quantities of tin will be available for allocation. During the first half of this year the interim allocations are as follow—figures in long tons:—U.S.A., 3,640; France, 2,275; India, 1,140; Canada, 680; Italy, 455; Sweden, 390; Switzerland, 365; Czechoslovakia, 340; Poland, 205; New Zealand, 150; Hong Kong, 150; Denmark, 140; Austria, 115; Brazil, 115; Argentina, 100; Turkey, 100; Egypt, 100; other Middle East, including Palestine, 100; Yugoslavia, 90; other Latin America, 80; Finland, 70; Norway, 70; Greece, 45; total, 10,915 long tons.

In general, supplies may be obtained from the following sources:—The United Kingdom on behalf of Malaya and Hong Kong; the Netherlands, including Netherlands East Indies; Belgium, including the Belgian Congo; China; Siam, and South Africa. For the Latin American countries the U.S.A. is an additional source for limited quantities, and supplies may be available to France from French Indo-China.

There is some doubt whether Siam can be regarded as an effective source of supply, due to exchange difficulties, and for the present, owing to the need for inspection, no further quantities are available from Japanese stocks in the U.S.A.

At the recent meeting of the Committee, it was announced that Mr. M. McDougall would replace Mr. Douglas Campbell as British member upon Mr. Campbell's return to England. Consequent upon the return to England of Mr. J. A. E. Smart (the secretary of the Committee), Miss Marion Worthing and Mr. C. B. Wilson were appointed joint secretaries.

Considering the obvious difficulties, the tin supply position cannot be regarded as unsatisfactory. Copper users are reasonably well supplied, and should remain busy over the coming months—subject always, of course, to the necessary fuel being made available. Arrivals of zinc in this country have been better recently, and if the level can be maintained consumers should have little fear for the future. Lead could be more plentiful.

HIGHER PRICES FOR STEEL CASTINGS

The Control of Iron and Steel (No. 56) Order came into force on January 21. It amends certain maximum prices, the principal alterations being increases in the prices of steel castings, chain-link fencing and mattress wire. Prices of steel castings are increased by approximately 8 per cent., and certain items in the related schedule are revised. Prices for mattress wire and wire 37g and finer are increased, and the flat-wire price list has been revised. In chain-link fencing there is an increase of around 2½ per cent. to reflect the increase in the price of spelter.

Old and waste material for re-rolling is decontrolled under the Order. Other changes are:—Tube steel: Extra for acid quality established. Steel sheet piling: Extra for delivery by road established.

Copies of the Order (S.R. & O. No. 78) are obtainable from the Stationery Office (price 1d.).